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Aims and Objectives in Environmental Health*

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WE are fortunate in the field of preventive medicine that we have the means for taking an objective measure of our success. When you look at the drop in morbidity and mortality, when you look at the rise of industrial production, and when you see how the levels and standards of living are improving; then you can congratulate yourselves that preventive medicine is contributing so much to these social gains. We travel and dine together and gather in crowds with confidence in our health safety. At the same time, the swift transportation that moves millions of us about the country daily; the dependence of whole cities on a central water supply; the expanding industrial use of strange chemicals and radioactive isotopes—all these suggest to us how much the continuance of our civilization depends on alert and vigilant public health services. Technological developments constantly remind workers in public health that they must bring their efforts into phase with the needs of our times.

That is why it is opportune to take new bearings and reset our course—after the example of Shattuck and his associates a century ago. We realize today that the primary public health problems of the first part of this century—germ diseases—are now under reasonably good control. Accordingly, we should place greater emphasis on other problems in public health; but our strategic objective today is not so much a shift in emphasis as it is a new concept of health. Traditionally, we have thought of treating or preventing sickness. We have now reached a time when we can think in positive terms of protecting and promoting the health and vigor of the individual and the community. This modern concept of health concerns all the relations of man with his environment—his natural surroundings, his diet, his housing, his working and travel conditions, his recreation—all of the physical give-and-take between the individual and the world which gives him his life. The resources of the health professions, the sociologists, and the educators, and the

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health departments of all our branches of government find a natural alliance in this concept.

From 1900 to 1920, health services were devoted largely to clarifying the epidemiology of the more common diseases; developing practical techniques to prevent and control epidemics; and building the experience, the institutions, and the working relations which enable us to use our knowledge for preventing disease. In the 20's, we refined and improved these health services. In the 30's, reflecting the accelerated advance in scientific knowledge, there came a greater degree of specialization and professional discipline. The public health worker, like the general practitioner of medicine, learned to classify health problems and to deal with them through specialized health services. The 40's are noted for the advances in medical chemistry and the development of antibiotics, but they may be remembered also for the search for a redefinition of public health and for the establishment of a program to deal with the health needs of an aging population. As for the 50's, they promise a new era in the history of public health.

In the past 50 years, our annual investment in public health has increased from hundreds of thousands to hundreds of millions. This investment does not include the billions of public expenditures for public water supplies, for collection of liquid and solid wastes, and for other utilities which have a direct bearing on the health and well-being of the people. Thus far, the health dollar has been soundly invested. The proof of the soundness of investment in public health is demonstrated in our vital statistics. In terms of controlling diseases carried by germs, public health is reaching maturity. It can now prepare for a new stage. Our vigorous health machine will be fully occupied working on problems of the future.

It is in this setting that we are beginning to perceive the framework of the new concept of environmental health. Its foundation rests on the essentials of existence—man's need for and man's use of air, water, food, and shelter. The protective lining of this foundation is sanitation. Sanitation is the one health necessity that is universal. The problems of sanitation are common to all peoples. Differences among areas are not differences of kind but only differences in complexity. Since sanitation is basic to community existence, it is understandable that the pioneers in public health gave primary attention to cleanliness. Water supply, waste disposal, food and milk received top consideration. From the national point of view, air sanitation has been of secondary interest thus far, although it is a growing issue in many industrial centers. As to shelter, national health controls thus far have been aimed chiefly at diseases carried by pests and vermin.

As we look back on environmental health over the past fifty years, we see that despite our great achievement there lies before us a whole continent of unfinished business. To our credit, we have shown some intelligence about clearing a few health barriers ahead of orderly national growth. This was true to a great degree of municipal water supply and liquid waste collection. It is true also of certain aggressive actions in the past ten years against insect-borne diseases. Also in recent years, our colleagues in the veterinary field have been marshalling their forces against the 25 animal-borne diseases that are communicable to man. Enough has been done to show that we are capable of intelligent and aggressive programs of anticipating future needs.

We cannot be smug or comfortable about the history of milk sanitation, shellfish sanitation, and sanitation of bathing waters. There are no grounds for congratulations on the national record on controlling water pollution, on school and institutional sanitation, and

unsolved questions of food sanitation. What, one may ask, is the national health plan on air pollution including control of irritating pollens, the hygiene of housing, and home accident prevention? What do we know about unhealthful aspects of faulty community planning, substandard recreational facilities, and abnormal noise? Most certainly we cannot view with pride our progress in rural sanitation—more than 25 million of our rural population who have been able to obtain electric power are still without running water and water carried waste systems. These are but examples.

In the United States, mortality resulting directly from inadequate environmental sanitation is comfortably low, although, one would suspect that the indirect influence is considerable. It is merely negative, however, to measure environmental health progress in terms of low mortality or even low morbidity. Today we seek qualitative measures of the environment in which we live, work, and play. We seek a measure of general well-being, pride, and confidence. The National Sanitation Foundation expresses this standard as "... a way of life...."

It is not necessary to preen ourselves on our past successes. The outstanding contributions to public health made by the professions of sanitary engineering, bacteriology, biology and chemistry, and related disciplines are well known. For example, our engineering success in providing cities with water supplies at low cost is so commonplace as to seem a natural phenomenon like sunshine. With this engineering achievement, there has been the dramatic triumph over typhoid fever. But what role, if any, does water play in transmitting certain virus diseases? We should know more about the effects on human beings of chemicals in drinking water. Standards of chemical quality are certainly open to conjecture. It is not entirely clear as to whether there are harmful physiological effects from industrial chemical waste, and perhaps from phosphates in the drinking water. We have been perhaps overly cautious in marshalling our forces on fluoridation of public water supplies. And there is still a long way to go before all communities have a water supply that is satisfactory as to physical properties. So with all honor to the great achievements in this field there is yet a job to be done.

SEWERAGE

Paralleling developments in public water supplies have been the engineering achievements in collecting liquid by-product wastes in our cities and industries. In this field one wonders from the standpoint of economics if perhaps it was not an error to disassociate the production and delivery of safe water on the one hand from the collection and disposal of the inevitable liquid by-product wastes on the other. In their respective areas there is not too great a difference in the level of professional knowledge between the treatment and delivery of water and the collection and disposal of the finished by-product. Differences in the present status of development in the two fields reflect only the disproportionate weight of public sentiment and opinion. Public opinion ordinarily insists upon a satisfactory water supply, and public opinion insists equally upon the effective collection of sewage. But the public has been slow to give funds for the proper treatment of the sewage.

STREAM POLLUTION

Our water works and sewerage systems have sustained the growth of great cities and industries, and these in turn are polluting the streams which provide the water and carry off the waste. More than half of our population now lives in cities. Our industrial production which feeds by-product industrial waste to our streams, has been gaining phenomenally. Our people and their industries are mak-

ing demands on our natural water resources which must sometime soon reach a physical limit.

Of the 20,000 significant sources of stream pollution today, about half are municipalities and half are industrial. The daily waste discharges to streams from municipalities have a population equivalent in excess of 80 million. Of the 10,000 industrial sources, half produce organic waste. These industrial organic wastes amount to more than 80 million population equivalent units. Today the sanitary engineer has the knowledge for treating organic and most chemical waste, despite certain gaps that may still exist. But this knowledge has not been fully applied. In what we know, we are, as a society, far ahead of what we do.

What has been done is impressive. From 1915 to 1950, we made an investment of nearly 9 billion dollars in public sewage treatment construction. In that same period, we invested another billion dollars in maintenance and repair. Additional billions were invested privately for industrial waste treatment.

During 1949, our cities invested 277 million in 208 waste treatment plants. This was 1,000 per cent more than was invested in 1946, the first post-war year, when only 23 plants were built. But all our building still falls woefully below the needs.

Our cities will need to invest 4½ billion dollars in the next ten years simply to meet the more obvious needs for sewage treatment works. In other words, the cities need to build sewage treatment works at a rate nearly three times the current one, if they hope to overcome by 1960 the most threatening conditions of stream pollution. Industrial waste treatment needs are about as great.

While I am on this subject, I am reminded that the literature on water pollution includes many references to the need for agreement between "conflicting interests" in the use of our natural water resources. The reference to "conflicting interests" to me indicates a false base. I believe the several legitimate uses of natural waters constitute an "allied interest," with each use entitled to its proper emphasis. The public interest demands that management of natural waters be on the total use concept.

Water pollution control today is a state problem; it should and will remain a state problem, provided the states pursue an aggressive policy of remedial action and coöperate fully with each other on problems interstate in character. The federal activity is geared to supporting the efforts of states.

GENERAL SANITATION

The protection of sanitary conditions in the handling of milk and food continues to suffer from confusion and irregularity. The technology of these sanitary controls is fairly well established; yet we have a multiplicity of codes, conflicting standards, and even wide variations in interpretation of similar standards. Milk and food sanitation is a job primarily of local health authorities, but questions of policies and standards inevitably involve the total health structure. These conflicts discourage public support of food sanitation measures; also, they impair the services of the distributors of food and increase the cost to consumers. Several industries, through their national organizations, have appealed repeatedly for relief from multiple inspections and conflicting health requirements. We have also a responsibility to provide standards as guidance to manufacturers of sanitary equipment.

More and more people are demanding a practical method of sanitary control of milk shipped in interstate traffic. More than 13 million lbs. of fluid milk are shipped interstate daily from surplus to shortage areas. We might apply to this milk the general techniques which have proved successful in the sanitary control of interstate shipments of shellfish.

The use of synthetics in processing certain foods has raised questions as to their effects on the nutritive value of foods so treated. This is a job for cooperative research in the fields of sanitation and human nutrition. The possible toxic effects of chemicals used in food production and processing also deserve more attention from public health officials, so that scientific regulation may anticipate public demand for stringent prohibitions.

Progress in the control of insect-borne diseases has been generally satisfactory. For example, the transmission of malaria has been virtually halted, and endemic typhus fever is declining. However, the fly-borne diarrheas and equine encephalitis are not so well controlled.

Sanitation in public institutions has been disregarded for so long that few of us today know the true conditions. The overcrowding that generally exists in such facilities demands every practical safeguard. Considering the nonprofit basis of operation, however, simple and economical techniques are needed. This is a challenge for state and local sanitarians. Plans are crystallizing to carry on a program of technical development in this field at the new clinical research facility now under construction as part of the National Institutes of Health.

In the past 3 decades much progress has been made in the industrial hygiene field. While technical knowledge has kept pace reasonably well with industrial growth, there is some evidence of jurisdictional conflicts between state agencies operating in this field. The health of industrial workers requires use of all entities of the public health structure; hence, industrial hygiene properly is a function of health departments.

To provide adequate environmental protection for the industrial worker, it has become essential to have more satisfactory medical data. In addition to data on occupational diseases, there is a need for medical data which can be correlated with our abundant engineering data on atmospheric conditions and other industrial problems.

In passing, it behooves us all to understand the national policy, with regard to the health aspects of the Point IV program, assistance to underdeveloped countries. This activity is deserving of our full support.

RADIOLOGICAL HEALTH

The impact on health of the atomic age is yet to be fully realized. Man's unleashing of atomic energy has made possible great advances in science and industry. At the same time, it has confronted us with new and potentially serious health problems. Eventually, the responsibility of protecting the population against harmful effects of ionizing radiation will fall upon public health officials. A new personality—the health physicist—is entering the public health family.

Radioactive isotopes are being used on an increasingly wide scale; about 4,000 shipments annually reach institutions in almost every state.

The public health profession must respect fully the security controls imposed by the Atomic Energy Act of 1946 which is administered principally by the Atomic Energy Commission. In principle these restrictions are no different from those trade secrets with which we public health workers have been entrusted by other industries throughout the years. The criteria are the same; you must convince the industry that you need and are capable of using the information; and that you will not divulge it. We must provide ourselves now with technical proficiencies necessary to enable us to meet our responsibility for health protection against radiological hazards.

"Safe" limits of contamination that have been set by the National Committee on Radiation Protection must be thoroughly understood to be administered wisely. Although there is tech-

nical uncertainty, there is no "security" enshrouding safe limits or maximum permissible concentration of many if not most radioactive substances. It behooves the public health profession to prepare itself and help in the definition of these figures just as it has in the case of many other noxious substances.

The Public Health Service is proceeding with all possible speed in this field. The program has four objectives: (1) to train a group of its officers as experts in the field of radiological health; (2) to furnish state health agencies with pertinent information as it becomes available through security channels, and to provide them with consultation on emergency problems; (3) to develop at the Environmental Health Center (Cincinnati, Ohio), a training facility for state and local health personnel; and (4) in collaboration with the Atomic Energy Commission, to carry out essential research. In this research three major requirements are under study: the development of practical methods of handling and disposing of radioactive wastes, the development of techniques of detection in and decontamination for public water supplies, and the acquiring of scientific knowledge of the behavior and effect of radioactive waste in surface streams.

RESEARCH AND DEVELOPMENT

All of us will agree, I believe, that the extent of our industrialization and urban congestion has created environmental problems which current research and development can scarcely expect to solve within ten years. Our research facilities are woefully inadequate in terms of environmental health problems. In view of research funds generally available, it is difficult to understand this deficiency in research into environmental health.

If a small percentage of their annual appropriations was given by state health departments for research and developmental activities relating to environmental health problems peculiar to their respective locations, the investment would be well warranted.

There exists a real need for working out some machinery for indexing the national research effort in a manner that would permit critical review by national associations and other professional groups. In this manner we might better keep apprised of what is under way, progress that is being made, and the gaps in knowledge remaining to be filled.

As periodically we review and revise standards, we try, of course, to keep in balance the potential hazard involved and the cost of preventive measures. If we are guarding against infectious disease, obviously the level of infection of the disease in question must be weighed. Health authorities are accused often of being perfectionists, with no regard to economic realities. Let us be realistic without compromise where a serious hazard to public health occurs. Let us be equally realistic where the hazard is negligible.

NATIONAL DEFENSE

We are all aware that it may not be given to our generation to live in an environment of total peace. The unsettled state of the world creates dangers and responsibilities which every citizen must share. A particularly heavy responsibility falls upon the nation's public health services. It is not enough that we learn to defend our people if necessary against the effects of radioactivity, of blast, or of biological agents, or poison gas attacks. It is important that we keep in mind that we have also the duty to do all in our power to assure that the personal health and vigor of our citizens are kept at the high level necessary for a strong defense against all possible threats.

Our immediate civil defense problem is to plan measures for dealing if necessary with blasts which may destroy from 10 per cent to 20 per cent of a

community; which may disrupt if not destroy the water and sewerage systems; which may create hysteria, panic, and a mass flight from the cities. That problem alone would be difficult. It is complicated by the prospect that any possible attack upon us may be wholly unconventional. It may take the form of surreptitious efforts to spread poisons or infections among the population. Such measures may or may not have legitimate military objectives. But the fact that many authorities consider them practically possible requires us to prepare ourselves both technically and morally. The fact that the attacks may be insidious and obscure makes it all the more important that we approach them coolly and scientifically. We only injure ourselves if we allow our apprehensions or a too gullible acceptance of panic-provoking stories to plunge us into foolish and extravagant measures.

One practical step is to extend our coordinated research into detection of noxious matters and protection against them. Such research necessarily will include the invention or development of instruments and operations. Among other measures the National Institutes of Health and Communicable Disease Center are looking into the field of airborne pathogens and will establish a system of "epidemic intelligence." The Environmental Health Center is working now on techniques for using the new microscopic filter as a laboratory tool for application in the field of sanitary bacteriology. With some modifications, the filter may prove of value in purifying small quantities of drinking water. It promises to be a quick and economical method for general bacteriological examination. It can be produced inexpensively and it is easy to use.

Also undergoing test is a new sterilizing agent containing a silver compound. Preliminary laboratory reports indicate that this material under specified conditions is not only an effective bactericide, but also appears to have unusual residual qualities. With further investigation, we should know shortly whether this chemical is of practical value for our purposes.

A third possibility of defense is in the design of our public water supplies. For example, a system that uses dual clear wells with sufficient capacity can alternate their use so as to gain the advantages of long retention in each. If animal testing is combined with this system, the defense against poisons in the water supply will be stronger.

It is hard to overemphasize the defense-related importance of public water supplies. In a war situation public water supplies and related sanitary engineering services again will demand top priority consideration of our public health services.

PERSONNEL

A discussion of environmental health would be incomplete without a mention of professional leadership. Considering the wide range of health functions included under this heading, it should be evident that the field belongs exclusively to no single profession. It is an interdisciplinary job. It requires a synthesis of skills through team work with recognition of the personal as well as the professional qualifications of the individual. The orderly development of public health allows no place for professional isolationism. The day is passing when any discipline can expect to control a major segment of the public health movement in any way other than through dynamic leadership and demonstrated professional competence. Speaking as a professional sanitary engineer, I would say that most of us are willing to accept this challenge with full confidence in our ability to continue to play a prominent role.

CONCLUSION

To sum up, I have tried to present, in

the light of our history, the direction of the future and some of the steps that will take us there. I have tried to present the modern concept of environmental health, and I have tried to suggest a realistic approach to the defense activities of the health services. Beyond the many details I have mentioned, however, there is still the main objective of defending and sustaining the health of man in his changing environment, present and future. We are about to move to the next stage in the development of man. And with all our alarms and problems, it is still a good bet that we shall arrive in good order.

New Chemical Society Award

The American Chemical Society administers a new annual Scientific Apparatus Makers Award in Chemical Education sponsored by the Scientific Apparatus Makers Association. Its purpose is to recognize outstanding contributions to chemical education. The award consists of $1,000, a gold medal, and an allowance not to exceed $150 for traveling expenses to the meeting at which the award is made.

In nominating recipients, chemical education is considered to include the training of professional chemists; the dissemination of reliable information about chemistry; and the relation of chemistry to our whole educational system. Recognizable contributions to this field will include unusual ability and accomplishment as a teacher; organization and research; methods and techniques of instruction; establishment of standards of instruction, and public enlightenment. Preference is given to American citizens.

Further information from Donald F. McCammon, Director of Public Information, Scientific Apparatus Makers Association, 20 North Wacker Drive, Chicago 6.

Methods of Measuring Incidence and Prevalence of Disease*

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IN the following discussion I shall discuss morbidity as a group phenomenon, that is, as the study of the natural history of disease in a population. There are, of course, other uses of morbidity data, but those lie outside the present discussion. The measurement of illness as a group phenomenon requires more than a mere count of the number of persons who are sick; it requires information necessary for the calculation of morbidity rates.

A rate, as used here, has three essential elements, a population exposed to the risk of some event, an enumeration of the frequency of the event during some interval, and a unit of time in which the rate will be expressed. The definition of the population exposed to risk and the unit of time need little comment. The probability of an event happening obviously depends upon the size and composition of the population exposed to risk and the length of time this population is exposed. A morbidity rate, of course, may be expressed in a unit of time different from the interval of observation. The crux of a morbidity rate is the event to be observed.

Since we do not have a reliable index of health except absence of illness, the event to be observed is an illness. But how shall illness be defined? The distinction between the living and the dead is clear-cut and easily made; a similar distinction cannot be made between the well and the sick since these do not comprise a true dichotomy. Except for acute illness due to certain external agents the transition from health to ill health is frequently almost imperceptible.

Instead of being represented by a dichotomy, the state of health of a group of persons may more realistically be portrayed by a continuous scale ranging from the perfectly healthy to the complete absence of health, that is death. Between these two extremes, except for certain conditions, there is no sharp line of demarkation between various degrees of ill health. Unfortunately, there is no agreement concerning criteria by which the various degrees of ill health may be identified and differentiated. Nevertheless, some critical points on the scale of health which will divide the population into seemingly distinct subgroups must be selected when practical investigations of sickness are carried out, but the dependence of reported illness rates upon this selection should not be forgotten.

The following rough classification of a population with respect to health will suffice for this discussion even though it does not represent a scale:

1. Free from any defect or disease.
2. Having congenital or acquired defects, impairments or diseases which cause no current disability. Examples of these would be

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hemophilia, visual or auditory defects, various kinds of orthopedic impairments and quiescent chronic diseases.

3. With latent or incipient disease usually unknown to the person affected. In most instances these conditions can be discovered only by special diagnostic tests. Examples of this would be early tuberculosis or diabetes.
4. Sick. This category includes the persons who recognize that they are not well. It covers a wide range on the scale of health. Moreover, an individual's belief that he is ill is affected by many factors in addition to his physiological condition. It frequently is desirable to subclassify this category according to the degree of disability caused by the illness. Many chronic diseases may become quiescent and cause no disability during a given period of observation. In the interval between acute episodes, they resemble the latent or acquired diseases mentioned above.

It is often claimed that the only illnesses which can be studied with reliability are those diagnosed by a physician. This claim must be rejected since its acceptance would exclude from study a significant proportion of cases which otherwise would fall in the last three categories of the above classification.

The three principal criteria for establishing ill health are:

1. The opinion of the individual concerned. If a person believes himself to be ill, he should be considered so, even though a physician may not be able to identify a physical cause. Of course, the patient's statement of the cause of his illness frequently may be erroneous.
2. Clinical examination by a physician.
3. Diagnostic tests.

Some misunderstanding exists concerning the role of diagnostic tests in the study of ill health. Contrary to a widespread belief diagnostic tests, in general, do not make diagnoses. Nor do they necessarily objectively establish either the fact or the cause of illness. A diagnostic test may be qualitative, resulting in a picture, for example an x-ray film, which must be interpreted by a reader. Or a diagnostic test may yield a reading on a quantitative scale. Criteria for relating specified scale values with various degrees of ill health must be established before the results of such tests can be interpreted in terms of illness. The validity of the calibration of a test and the competence of the interpreter of the result will materially affect the number of cases of illness discovered in a population.

Assuming that we have been able to define illness and have satisfactory criteria to establish its existence there remains the further problem of classifying the types of illness which can be identified. There are several principles by which illnesses can be classified, but the only one which is pertinent here is a generic classification.

Unlike death which occurs at a point of time, illness exists during an interval of time. Consequently a statistical measure of the amount of illness in a population must make appropriate allowance for the time dimension of morbidity. If a population is observed for an arbitrary time interval, the cases of illness which are identified can be classified with respect to time as follows:

1. Existing prior to the beginning of the interval, continuing throughout the interval and still existing at the end of the interval.
2. Existing prior to the beginning of the interval and terminating during the interval.
3. Arising during the interval and still existing at the end of the interval.
4. Arising during the interval and terminating before the end of the interval.

The unifying principle underlying these four categories of illness can be discovered by describing them in terms of the theory of population. Two functions are necessary for the characterization of the development of a population, an increment rate which determines the rate at which new members enter the population and a decrement rate which describes the rate at which members leave the population. The size and composition of a population at any time is a joint function of the increment and decrement rates. If the parameters of these two functions are known, many

characteristics of a population can readily be demonstrated.

Reëxamining the categories of cases of illness enumerated above, we see that the latter two comprise all cases arising during the interval; these two categories combined may be used to define the rate at which new members are added to the population of sick persons. The increment rate of a population of sick persons is called the incidence rate of illness.

A little reflection will show that the decrement rate of a population of sick persons which is a function expressing the duration of illness cannot be derived from the four categories of cases enumerated above except under very special conditions. However, these categories combined represent the total number of persons in the sick population during the time interval. This number can be used to compute a prevalence rate of illness, that is, a measure of the aggregate size of the population of sick persons.

Unlike the incidence rate, the prevalence rate is a direct function of the length of the interval of observation. This way of looking at the prevalence rate of illness is contrary to that commonly accepted. Prevalence usually is defined not as a rate but as a ratio of two quantities and the concept of time is not involved. In other words, prevalence is said to express the proportion of a population which is sick at a specific moment of time. This concept is incomplete and inconsistent, and is not in conformity with what actually occurs.

Both the incidence rate and the duration of illness are continuous functions. The size of the population of sick persons, which is a joint function of these also, can be expressed as a continuous function. Theoretically, no matter how small the interval of observation, the four types of cases enumerated above can be identified. I know of no reason why illnesses must all terminate at midnight, although due to social customs they may appear to do so.

Prevalence then is represented by the sum of the cases of illness existing at the start of an interval and the new cases developing during the interval. The length of the interval of observation must always be specified if a prevalence rate is to be correctly interpreted, for we may speak of the number of persons who are sick at any time during a given day, week, month, year, or other arbitrary interval. We can, of course, also compute an instantaneous prevalence rate, that is the average number of persons sick at any instant during an interval. This presumably is what many people have in mind when speaking of a prevalence rate.

There are many other factors to consider in the definition of a morbidity rate. These arise from the fact that a person may have more than one attack of illness during a given time interval. Furthermore, two or more diseases may exist simultaneously or sequentially during any attack. Consequently morbidity rates may refer either to persons or to illnesses. In defining incidence rates of illnesses, account must be taken of whether a new case is to be defined as the first or initial attack during the individual's lifetime or as a separate attack during the period of observation. However they are defined, "new" cases must be differentiated from "recurrences" and "relapses." For some diseases, such as measles, the initial attack gives immunity to subsequent attacks; for other diseases, such as bronchitis, the condition may persist in a quiescent state causing no disability after the initial attack, but acute disabling episodes will recur from time to time; while still other diseases, for example acute upper respiratory infections, may attack the same person repeatedly with apparent complete recovery between the attacks. No further elaboration of these problems can be made at this time.

In studies of the natural history of disease, the fundamental morbidity rate

is incidence since this rate measures the increment to the population of sick persons and in conjunction with the decrement rate determines the size and composition of this population. From these two rates, the prevalence rate can be derived. For some simple types of populations, average prevalence equals the product of average incidence and average duration in the sick population. Prevalence, especially for chronic diseases, frequently can be determined more easily than incidence but this should not be allowed to obscure the fundamental nature of the latter.

Methods of studying the natural history of illness may be evaluated by the following principles:

1. The size and composition of the base population must be known. It is true that certain aspects of the way a disease manifests itself, such as the relative susceptibility of different organs or tissues, the length of the latent period, the stage at diagnosis and duration of symptoms, can be profitably studied from a knowledge of cases of illness alone. But incidence and prevalence and their relationship to the demographic characteristics of individuals and to environmental conditions cannot be reliably determined without knowledge of the population exposed to the risk of illness.
2. Generalization of findings beyond the specific population studied should be possible. This requires that the population studied must be a representative sample of the larger population for which the generalizations are thought to hold true. The representativeness of a sample can be insured only if the sample has been chosen in accordance with tested statistical principles.
3. The study should extend over a period of time. Except for a few conditions with abrupt termination, illness has a time dimension. The etiology, the latent period, the duration of illness, and other aspects of many diseases cannot be understood without extending observations over a time period. This may be accomplished by keeping a population under continuous observation or by repeated visits at given intervals.
4. As much as possible of the entire scale of ill health should be included. Many studies in the past have been based on the fallacious assumption that more valid information about illness would be obtained by the use of an "objective" definition such as cases discharged from hospital. This merely insures that the data will be unrepresentative of even the recognized illness in the population. A more desirable procedure is to use as inclusive a definition as possible but to differentiate between various degrees of illness.
5. It should be possible to obtain detailed verifiable information about illness. Although the affected person's statement concerning the existence and severity of illness may be accepted, more detailed information concerning etiology, diagnosis, and other aspects of morbidity should be verified by the most reliable means available. As we learn more about morbidity from a specific disease the greater becomes the demand for detailed verifiable data.
6. The volume of records should not be so large that all except the most simple analysis becomes impossible.

With these principles in mind let us briefly examine some methods which have been used to determine incidence and prevalence rates.

UNIVERSAL REPORTING

The most widespread method of collecting morbidity data is reports, usually compulsory from physicians. Until recently such reports have been confined almost entirely to infectious and contagious diseases and to certain occupational diseases. The increasing attention paid to chronic disease has resulted in attempts to collect morbidity for these diseases in the same way. This attempt is not likely to be generally successful.

As a source of morbidity data, universal reporting by physicians rarely has been satisfactory. Even when the information to be reported has been reduced to the barest essentials, in many instances to nothing more than the number of cases of disease, reporting has been seriously incomplete.

Chronic diseases do not occur in epidemic form. The incidence rate changes only slowly if at all. Many diseases may

persist for long periods of time and the person affected may receive medical care from several sources with the consequent necessity for the accurate identification of each case. Since so little is known about the epidemiology of many of these diseases their relationship to a wide variety of factors must be investigated.

Universal reporting, wherever it has been even partially successful, has been required for administrative or legal purposes. This is true for the registration of births, deaths, marriages, divorces, infectious diseases, and occupational diseases. The statistical data resulting from this registration arise as by-products of the system and are not the primary reason for its existence. As yet, the principal reason for the reporting of chronic diseases has been the statistical data which would be obtained. Until registration of cases of disease can be justified for reasons other than the statistics which will result, the universal reporting of chronic disease is not likely to be a useful source of morbidity data.

One justification for reporting of chronic disease is the provision of health or medical services. Unlike most contagious diseases for which the acute manifestations last only a few days or weeks, many chronic diseases persist for months or even years. The need for medical care or for periodic examination continues for corresponding periods of time.

Moreover, the onset of many chronic diseases is so slow and imperceptible that suspected cases should be kept under observation for extended periods of time. If direct services are to be given to persons with actual or suspected chronic disease such cases must be reported and records must be kept. A case register can be a very useful administrative tool in providing such services and at the same time if all cases arising in a defined population are included, can be organized so that it will yield valid morbidity data.

RECORDS FROM HEALTH, MEDICAL OR INSURANCE PROGRAMS

One of the first thoughts that come to the mind of many persons when the subject of morbidity statistics arises is that the records of hospitals, clinics, prepaid medical and hospitalization plans, health insurance plans, and similar organizations are the most reliable sources of data. This is the great mirage of morbidity statistics. However useful such records may be for the administration of the particular program from which they arise or as a measure of the demand for medical care, they cannot, as a rule, be expected to yield the kinds of morbidity data under discussion here. There are many reasons for this.

In some instances, in particular, hospital and clinic records, the size and composition of the population from which the sick persons come are unknown. This can be obviated by collecting records from all hospitals in an area for which the population statistics are available from the Bureau of the Census. But if this is done the volume of records may become unwieldy and unnecessarily expensive to analyze. In practically all instances, the records cover either only part of the illnesses which develop in the population or only selected groups of the population itself. Although these types of records usually are assumed to provide more precise morbidity data, particularly with reference to diagnosis, this frequently is not true since the records are kept primarily for administrative or fiscal purposes. Very little effort is devoted to maintaining accurate illness data.

POPULATION SURVEYS

Included here are all investigations wherein the selection of the individuals to be studied does not depend upon a knowledge of the presence or absence of ill health. This method of collecting morbidity data meets more of the criteria for determining the incidence and preva-

lence of disease than any of the other methods so far devised. The population exposed is defined as part of the process of obtaining information about illness. Moreover, illness can be related to a greater variety of demographic characteristics and environmental factors than if the population data must be obtained from census statistics. Perhaps the greatest advantage of the population survey is that it allows the investigator to define the kinds of illness which will be included and to design studies to answer specific questions. Its flexibility in this respect is in striking contrast to the inflexibility of obtaining morbidity data from the records of operating programs.

The population survey method, however, has disadvantages. It is expensive, relative to other methods, if a large population group is covered. This disadvantage has been partially overcome by recent advances in the knowledge and techniques of conducting sampling studies. The informant can report only on illness of which he is aware, but this usually covers a greater range of the scale of ill health than morbidity data obtained from records. The completeness of reporting decreases rapidly with an increase in the length of time for which data are requested. This source of error can be controlled by frequent visits or by having daily records kept, but these are not always practical.

The greatest drawback of the population survey is that, although it is well adapted to obtaining gross data on the total incidence and prevalence of disease and the relationship of these to a variety of demographic and environmental factors, it cannot provide reliable detailed medical information concerning the cause of illness and the way in which a disease affects the person attacked. For example, in studying morbidity from cancer we want to know the primary site, the histological type, the stage of disease at diagnosis, and the method of establishing the diagnosis. A lay informant cannot be expected to have knowledge of such facts. The same problem exists for cardiovascular diseases and a variety of other disorders.

LONGITUDINAL STUDIES

A method of studying morbidity which has been used only occasionally but which merits more serious consideration than it has received in the past is the longitudinal study of a population. Many aspects of illness, particularly illness due to chronic disease must be observed over a long interval of time. The interrelationship of various diseases and the effect of different possible agents upon the development of disease can be studied more effectively by the cohort or generation method than by the cross-section or retrospective methods. However, longitudinal studies are expensive if large numbers are included and do not yield quick results. In addition, there is some question concerning generalization of the findings to other population groups since such studies are usually confined to the population of a single community.

DIAGNOSTIC SURVEYS

The methods so far discussed have been used to study various kinds of known illness, conditions which are recognized by the person affected or by a physician. As was pointed out above, the onset of many diseases is slow and may not be recognized at all, or if recognized, thought to be of no importance. In recent years the development of efficient diagnostic tests has made practicable the screening of large groups of supposedly well persons for unsuspected illness. Used first in screening for tuberculosis and venereal disease separately this technique recently has been extended to screening for several diseases simultaneously. If properly carried out, this technique offers great promise for further extending the observable range of the scale of ill health toward the origin of illness.

Two questions arise with reference to the use of diagnostic tests to detect hitherto unsuspected disease. First, what proportion of the total number of cases which the tests are capable of detecting are found? Second, how valid are the tests, that is, how many persons are said to have a suspected disease when in fact they do not, and conversely how many persons are said to be well when in fact they have the disease in question. Unfortunately too little attention has been devoted to obtaining answers to these questions in the surveys which have been conducted so far, even though these answers are essential for the evaluation of the techniques both as a case finding method and as a source of morbidity data.

Before the results of multiphasic examinations can be used as a measure of prevalence of disease we must know much more about the validity of the tests, the reliability of the tests, and the effect of incomplete coverage of the population. The usual method of checking the validity of a test is to reëxamine suspected cases by other diagnostic procedures which are accepted as the standard for diagnosing well defined cases of disease. But this is not necessarily conclusive since the same result will be obtained irrespective of whether the diagnostic test is in error or is, in fact, detecting disease at a stage in its development when the standard test is too insensitive to discover it. The only way of deciding this question is to observe the suspected cases which are classed as false-positives for a period of time and see whether the disease progresses to the extent that it can be diagnosed by the standard techniques.

One check of the reliability of the 70 mm. film for the detection of tuberculosis by having two independent readings showed that the use of a second reader increased the number of suspected cases to be called back for verification by 46 per cent.[1] The same study also revealed that those not reporting for examination were unrepresentative of the total population with respect to age and economic status. Based upon a sample who subsequently reported for examination, this group had a somewhat higher prevalence rate of tuberculosis. However, this problem needs much further study.

The principal conclusion to be drawn from this brief sketch of methods of measuring incidence and prevalence of disease is that no single method is satisfactory by itself. A population survey of a sample of a large population is probably the best way of obtaining incidence and prevalence rates for all forms of illness combined. If this is supplemented with verification of diagnoses by means of information from physicians and hospitals, reliable prevalence rates for specific diseases also can be obtained. To be most useful the survey should not be a one-time study but should be repeated periodically.

The range of the scale of ill health included could be extended by combining the population survey with multiphasic screening. Since the latter is not practical on a sampling basis this would have to be done by an intensive survey of the population of a local area. The data from the more extensive sampling population survey could be used to determine how widely the results of the intensive study could be generalized.

The population survey, especially if combined with some form of diagnostic screening and verification of diagnoses, can be expected to yield reliable incidence rates for all forms of illness and prevalence rates for specific diseases as well as data for studying the relationship of these to different demographic and environmental factors. It is not very efficient for measuring the incidence of specific diseases, especially diseases which do not have an abrupt onset and which persist for long periods of time. Consequently, the population survey

should be supplemented with intensive studies of illness in complete population groups. We cannot be satisfied only with prevalence data or with the gross incidence data which can be obtained by a general population survey.

The intensive investigation of morbidity by a longitudinal study of complete population groups offers real promise. Only in this way can the dynamics of illness be understood.

The question is not, Is the extensive population survey or the intensive longitudinal study of a complete population the best way of studying morbidity? Each is necessary because they are complementary. There is no single method which is the answer to the prayer for data on the incidence and prevalence of illness. The only answer to this prayer is a study of morbidity, and the two methods just mentioned have the most to offer for this purpose.

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Statistics Section

The Statistics Section plans to give over one of its sessions at the San Francisco A.P.H.A. Annual Meeting to contributed papers. It invites the membership of the Section, particularly, and any others who may wish to contribute, to submit an outline of the material to the Section Secretary, Carl L. Erhardt, 125 Worth Street, New York City, by April 30, 1951.

The Section would particularly like to have papers concerned with the evaluation of public health programs or with the development of specific methodology in connection with a public health program. The Section hopes in this way to increase the participation of the membership in the annual meetings and to make the membership, as a whole, more aware of the relationship of statistics to public health activities in general.

Epidemiological Approaches to Heart Disease: The Framingham Study*

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THE use of the word "epidemiology" and the concept of what epidemiology as a discipline may encompass has varied widely since the days of Peter Panum and John Snow. There are today many differing definitions of the word, but nearly all workers in the field will agree on one element of the definition: The word "epidemiology" by etymology refers to the study of something "which is thrust upon the people." There are still some who insist that epidemiology deals only with epidemics of infectious diseases, but current usage suggests that most workers would now agree that epidemiology deals with "the fundamental questions as to where a given disease is found, when it thrives, where and when it is not found . . . in other words it is the ecology of disease"[1] without regard to whether the disease is believed to be infectious.

Frost gave an analytical definition when he wrote that epidemiology "includes the orderly arrangement of facts into chains of inference which extend more or less beyond the bounds of direct observation."[2] His definition might be called the essence of the "epidemiological method" except for the fact that it has been used by the physician since the time of Hippocrates to arrive at his clinical diagnosis. Thus, today, the epidemiological approach is used to explore certain relationships in health and disease which, with present technological methods, cannot be observed directly. In addition to the many studies of the infectious diseases, there have been epidemiological studies in the fields of nutritional imbalance, metabolic disorders, occupational hazards, accidents, cancer, and rheumatic fever—to mention only a few.

In the field of cardiovascular diseases, studies using the epidemiological method have led to findings of considerable practical importance for prevention and treatment. Mention may be made, for example, of the studies of nutritional diseases, such as beriberi, pellagra, and scurvy, and of the infectious diseases such as syphilis, hemolytic streptococcal infections, and streptococcus viridans bacteremia. Rubella and other virus diseases have been implicated as etiological factors in congenital malformations of the heart, but further epidemiological study is still required to establish these relationships beyond the possibility of reasonable doubt.[3] Even in rheumatic fever, where fundamental etiology is still obscure, epidemiological studies have helped to demonstrate the relationship of streptococcal infection to subsequent rheumatic activity, and this has led to the adoption of control measures which show great promise.[4]

It should be pointed out, however,

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that except for rheumatic fever, the diseases mentioned above account for only a very small proportion of morbidity or mortality from cardiovascular disease. Of the epidemiology of hypertensive or arteriosclerotic cardiovascular disease almost nothing is known, although these two account for the great bulk of deaths from cardiovascular disease. The scanty epidemiological knowledge of these diseases which does exist is based either on the study of mortality statistics, which in the investigation of long-term diseases are often not very revealing, or on clinical studies, which have the disadvantage from the epidemiologist's point of view of being based on the study of those who already have the disease. Clearly, what is required is the epidemiological study of these diseases based on populations of normal composition, including both the sick and the well as they are found in the community.

These facts have long been recognized. Sir James Mackenzie, one of the great pioneers in cardiology, over 30 years ago began what was intended to be a long-term study of disease in the entire population of the town of St. Andrews, Scotland.[5] Because of Mackenzie's retirement a few years after the start of the study, it was never completed, however, and since that time there have been no other attempts to study heart disease in a large population of normal composition over any long period of time. The expense of such a study and the necessity of guaranteeing its operation for a span of many years puts it beyond the capabilities of the individual investigator. If such a study is to be done, it is clear that it must be carried out by the community health agencies. In the light of this situation, and with the growing interest in chronic diseases, the U. S. Public Health Service began in 1947 to lay plans for setting up an epidemiological study of the cardiovascular diseases in coöperation with state and local health agencies.

At this point it is well to present in outline the principal considerations which guided the development of the study, and led ultimately to its location in Framingham, Mass.

The study is focused on arteriosclerotic and hypertensive cardiovascular disease, because these are the most important of the cardiovascular diseases and the least is known about their epidemiology. As a working hypothesis it is assumed that these diseases do not each have a single cause (as is the case in most infectious diseases), but that they are the result of multiple causes which work slowly within the individual. It is recognized that, for the most part, specific and unambiguous tests for precise diagnosis of the early stages of these diseases are lacking.

Based on these general considerations the following research plan was developed. A group of randomly selected persons in the ages where arteriosclerotic and hypertensive cardiovascular disease are known to develop is selected for study. Based on as complete a clinical examination as feasible, there are selected out of this initial group those persons who are free of definite signs of these diseases. These persons will be termed the normals, and they will be observed over a period of years until a sizable number are found to have acquired the diseases. At that time a search is made for the factors which influenced the development of disease in the one group and not in the other.

As one by-product of this investigation it will also be possible to study the efficiency of various diagnostic procedures in finding heart disease or as indicators of the subsequent development of heart disease. (These findings, of course, have important bearing on the question of including tests for heart disease in mass screening programs.) A second by-product will be data on prevalence and incidence of cardiovascular diseases.

With these aims set up, it was then

necessary to define the population on which the study would be carried out. Ideally, perhaps, epidemiological investigations of cardiovascular disease should be set up in a number of widely separated areas simultaneously, so that various racial and ethnic groups will be represented, and a variety of geographic, socio-economic, and other environmental factors can be considered. The results of a study of a single area will have generality only in so far as the population of the area is representative of some larger population. Many thousands of persons should be included to allow for numerous axes of analysis, and it would be profitable to follow a cohort of individuals from birth to death. Because of the expense of examination and follow-up, however, it is not practicable to carry on studies simultaneously in several areas, nor to observe more than a few thousand persons for a limited number of years. It was concluded, therefore, that the study should be set up in a single area, and that coverage would have to be limited to approximately 6,000 persons in a limited age range, who would be observed for a period up to 20 years. A town of 25,000 to 50,000 population will supply this number of adults, and it was felt that a town of this size would be more desirable than a larger city for the type of community approach required to secure full coöperation and coverage. This limitation in geographic coverage clearly limits the generality of conclusions which can be reached. There is, however, reasonable basis for the belief that the distribution of arteriosclerosis and hypertension in the white race in the United States is such that within-community variance is very much greater than between-community variance, and a wide range of type-situations influencing development of these diseases may be found in any community. This hypothesis can only be tested, of course, by similar studies in other communities.

In mid-1947, Dr. Vlado A. Getting, State Health Commissioner for Massachusetts, offered to coöperate with the U. S. Public Health Service in setting up the study in that state, and after consideration of a number of possible areas the Town of Framingham was selected. Framingham, lying 21 miles west of Boston, is an industrial and trading center of 28,000 population, and is almost independent of Boston from the standpoint of providing suburban residence for the city. As is true of New England towns, it includes not only the built-up business and residential areas but also the outlying rural area within the town limits. Other points of interest are that Framingham has the town-meeting form of government and the people are accustomed to and well versed in the group approach to their problems. It was in Framingham that the first community study of tuberculosis was undertaken—a program sponsored by the National Tuberculosis Association and the Metropolitan Life Insurance Company, which began in 1917 and continued successfully for six years.[6] This latter fact, together with an indication of interest in response to the initial approach influenced to some extent the selection of the town.

The problems involved in setting up the study fell into four categories: professional, administrative, organizational, and technical, and all will be discussed in some detail. A program which involves medical examination of large numbers of people requires the respect, endorsement, and support of the medical profession. The plans for the project were given the endorsement of the Massachusetts Medical Society.[7] In Framingham the medical groups which center around the two local hospitals offered their active support to the program as proposed.

From an administrative standpoint it was necessary to secure clinic facilities and recruit a professional and technical staff. A centrally located residential

building was remodeled for clinic and laboratory space, and diagnostic equipment installed. A staff was organized, including the examining physicians; a clinic nurse; x-ray, electrocardiography and laboratory technicians; statisticians; interviewing and administrative clerks; a health educator; and visiting consultants in the fields of cardiology, electrocardiography, roentgenology, pathology, and biochemistry.

The organizational problems are those involved in bringing into the study the cross-section of the population which it is desired to study. The mechanics of selecting that cross-section are described in a later section; at this point the focus of interest is the method of bringing about community participation. The work of building a community organization began months before the start of clinic operation.

As a start, a health educator was placed in the Health Department with the assignment of studying the community. This meant not only learning about the history, resources, and government of the town but, more important, getting to know the people—their national origins, economic conditions, and lines of social stratification; their religious, fraternal, and civic organizations; and their recognized and potential leaders. From this study grew plans for the appointment, by the Town Health Officer, of an Executive Committee of 15 persons for the study—a committee which was broadly representative of the various groups in the community. Parallel to, and integrated with, the lay Executive Committee, there was organized a Professional Committee of physicians and dentists under the chairmanship of a cardiologist. Together, the Executive Committee and the Professional Committee accepted the following responsibilities:

1. To assist in planning a program which would be acceptable to the community as a whole.
2. To interpret the aims and objectives of the study in a way which would be understandable to all elements of the community.
3. To bring recognized and potential leaders of the community into active participation in the organizational aspects of the study.

After analysis of the community organization requirements of the study by the Executive Committee, six subcommittees were set up: Arrangements, Publicity, Industry, Business, Civic Organizations, and Neighborhood Organization. The Arrangements Committee has assisted in the operation of the study by providing clerical assistance and transportation. The Publicity Committee, composed of residents who are specialists in the areas of press, radio, advertising, and associated fields developed a plan for publicity media to be used in placing the program before the community. The Industry, Business, and Civic Organizations Committees brought the study to the attention of their special publics.

Perhaps the most important of the committees, however, is the Neighborhood Organization Committee. It has been the aim that every participant in the study should come into it on the basis of an invitation from someone he knows, and in whom he has confidence, and further that the invitation should come from a person who has been through the clinic. At the start, therefore, examinations in the clinic were offered to all members of the committees and these, in turn, passed word of the study on to other members of the community who were encouraged to volunteer for examination. From these volunteers a set of neighborhood committees has been selected. To those committees falls the all-important job of inviting the initial participation of the selected individuals and later stimulating coöperation in return for follow-up observation.

Up to the present time, use has been made of standard publicity channels to inform the people about the program. However, as we discovered from sam-

pling of opinion of persons volunteering for the study, the most valuable public information has come through word of mouth. The community has accepted the program as its responsibility, and recognizes that when people participate they make a real contribution to medical research. It should be added that the nature of the examinations provides a service to the selected individuals, and this has undoubtedly motivated many in the community to participate. It should be noted parenthetically at this point, however, that the service aspects of the study are limited to diagnostic information which is furnished only to the personal physician of the person examined. Where there are abnormal findings, the individual is referred to his own physician for interpretation of the findings and treatment if necessary. The clinic staff does not provide treatment, nor offer advice on treatment.

The technical problems of the study may be considered under two headings: medical and statistical. The medical problems involve selection of diagnostic procedures and methods of measuring the various characteristics of the people, and the establishment of criteria for interpretation of these tests. Statistical problems include the development of a method for sampling the population, and of methods for recording and analyzing the data obtained.

To determine the presence or absence of cardiovascular diseases and to record those items in the patient's past history that may have a bearing on the development of disease requires a rather extensive study of each selected individual. Within the framework of this type of study, it is also necessary that the examination be organized in such a way that the whole procedure can be done in a reasonable length of time, and without discomfort or risk for the person being examined.

All medical planning for the study was done in consultation with a Technical Advisory Committee appointed by the State Health Commissioner and made up of eleven physicians from the Boston area expert in the fields of cardiology and public health. This committee aided in setting up the broad outlines of the study by proposing hypotheses as to suspected etiological factors for testing. The committee assisted also in suggesting specific items for examination and laboratory study, and in advising on criteria for evaluating these criteria. The procedures which are carried out on each person admitted to the study may be summarized briefly as follows:

1. An extensive medical history including:
   a. Family history of cardiovascular disease in mother and father, siblings, and children.
   b. A detailed past medical history of diphtheria, scarlet fever, sore throat, rheumatic fever, various chronic diseases, operations, thyroid diseases, presence of transient or permanent hypertension, heart murmurs, and "heart attacks"; previous diagnoses of angina pectoris, limitation of activity due to heart disease, congenital heart disease, heart failure, vascular disease of any kind, enlarged heart, "nervous heart," pericarditis; and the history of any previous kidney disease, renal or hypertensive complications of pregnancy, or of any menopausal symptoms.
   c. Careful questioning for any current symptoms of heart or pulmonary diseases including cough, dyspnea, hemoptysis, smothering sensation, palpitation, chest pain and discomfort, edema, and phlebitis, etc.
   d. Personal habits of the individual, including number of hours of sleep, amount of tobacco and alcohol consumed.
   e. Average weight at five year intervals, beginning at age 25.
   f. History of peptic ulcer, chronic colitis, nervousness, headache, and other symptoms suggestive of emotional upset.
   g. Use of drugs or medicines.
2. A careful, detailed physical examination performed independently by at least two physicians, aimed at detecting cardiovascular abnormalities or diseases related to the cardiovascular system, and measurement of characteristics which may be related to such disease including:
   a. Height, sitting and standing, weight, antero-posterior diameter of chest, chest circumference, waist circumference, vital capacity, estimate of body build, color of eyes and hair,

and distribution of hair and degree of baldness.

b. Skin color and degree of freckling, the presence or absence of sweating, clubbing of fingers and toes, cyanosis, exophthalmos, arcus senilis, xanthelasma, thyroid enlargement or tumors, chest deformity, and evidence of pulmonary disease.

c. Examination of the heart itself including description of heart sounds, murmurs, abnormal rhythm, blood pressure determinations on admission and at time of discharge, and at intervals during the examination by each of the examining physicians.

d. Examination of abdomen for tumors, liver enlargement, or palpable spleen.

e. Examination of the extremities for presence or absence of femoral pulse, dorsalis pedis and posterior tibial pulsations, ankle edema, varicose veins, and phlebitis.

3. X-ray examinations, teleoroentgenogram on 14" x 17" film and on 70 mm. film with two meter target distance.
4. An electrocardiogram using twelve leads.
5. Electrokymographic tracing at 12 points on the cardiac silhouette.
6. Examination of blood sample for:
   a. Hemoglobin
   b. Serum cholesterol
   c. Serum phospholipid
   d. S_f 10–20 fraction (of Gofman)
   e. Uric acid
   f. Glucose level
   g. Serologic test for syphilis
7. A routine urinalysis

The aim of securing information on all of these items of history, physical examination or laboratory test is twofold. First, it is desired to record, in as full detail as possible, the characteristics of each individual which are considered relevant to the presence or absence, or the potential development of cardiovascular disease. Second, it is desired on the basis of this examination as a whole to classify the population studied into two groups: (1) those with definite signs of arteriosclerotic or hypertensive cardiovascular disease, and (2) those apparently free of these diseases (who may be termed "normal" for the purpose of this discussion).

It is the "normals" who are the principal focus of interest of the study. They will be brought back for reëxamination biennially for a period which it is hoped to extend for as long as 20 years. If they move from Framingham, an attempt will be made to bring them under a comparable examination elsewhere. If they die, an attempt will be made to secure autopsy data, and, at the very least, complete description of cause of death, and data as to the existence of cardiovascular diseases at time of death.

The choice of a sampling plan for this study was dictated by a number of considerations, some of which have already been suggested. The number of cases which could feasibly be studied—6,000—was much smaller than the adult population. Therefore, some method had to be introduced to select persons and avoid the unknown biases of self-selection. The total sample had to be allocated in such a way as to yield the maximum information over the period that the study was to be carried out. And the plan had to be such that it would be acceptable to the community, and could be carried out through the community organization.

One important decision which had to be reached concerned the age range of the study population. Clearly, if only a very young group was studied, only a very small number would develop arteriosclerotic or hypertensive cardiovascular disease even in 10 to 20 years' time. On the other hand, in the very old group there would be too large a proportion with preëxisting cardiovascular disease. To balance these two effects, the age group 30 through 59 was selected for study. The population in this age range was approximately 10,000. If 6,000 of this group were taken into the study, with the age-sex distribution existing in the town, it could be predicted (on the basis of the criteria of the study and tentative data available from a small volunteer group) that roughly 5,000 would be free of cardiovascular disease at the time of initial examination. Of these 5,000 it was estimated that approximately 400 would be found to have

cardiovascular disease at the end of the 5th year after the initial examination, 900 at the end of the 10th year, 1,500 at the end of the 15th year, and 2,150 at the end of the 20th year. (These numbers include, of course, persons who would be dead of the disease at the end of the specified period.) These numbers appeared to be large enough to insure statistically reliable findings, though it is recognized that even this number of cases will not be sufficient to carry out all of the detailed analyses which will suggest themselves in the course of the study.

There remained the problem of securing an actual listing of persons who would form the sample. Under ordinary circumstances, it would probably have been desirable to use some form of area sampling. The Town of Framingham, however, publishes annually a listing of all residents 20 years of age and over, based on a local census, and it has been possible to use this list as a basis for sampling. (An independent check of the completeness of the listing is being made by the Bureau of the Census.)

The Executive Committee advised that it would be desirable not to break up families—that is, if one member of a family was to be brought into the sample, all other family members resident in the same household should also be brought in, provided they were within the eligible age limits. This has been arranged, and the sample has been drawn in systematic fashion from a list which is first stratified by family size and by precinct of residence, and then arranged in serial order by address.

The sampling ratio is two-thirds, which will yield approximately 6,600 names. This is 10 per cent over the number required for the study in order to provide for losses through refusal or by movement out of the town before examination.

As the description of the examination suggests, a formidable mass of data will be available when the initial examinations have been completed early in 1952, and this will increase as follow-up examinations are carried out through the years on the normal group. Analysis of the data will proceed at each stage of data collection. When initial examinations have been completed, it will be possible to abstract prevalence data of considerable interest. It will also be possible to proceed with a study of the contribution which various elements of the total examination make in the determination of a final diagnostic impression. Analysis of this type will, for example, give a basis for determining the relative efficiency of the miniature chest x-ray, or of certain electrocardiographic leads, as diagnostic tools as compared with the total examination. In this area, some tentative data based on the group of volunteers already examined will shortly become available. Another important type of information will be data on the range of values of various diagnostic tests for "normal" populations, which have not hitherto been available in medical literature.

The more truly epidemiological parts of the analysis are essentially retrospective and must wait the passage of time. At the end of 5 years a portion of the base population, which was normal at the time of initial examination with respect to the diseases studied, will have passed the borderline into definite abnormality, and a few will have died. At that point it will be possible to study the differences, as of the time of the initial examination, between those who remained essentially normal, and those who subsequently became abnormal (or diseased). From this study it should be possible to test a number of hypotheses with respect to factors associated with the development of arteriosclerotic or hypertensive cardiovascular disease. As the abnormal group increases in size with the passage of time, such differences as are found to exist can be determined

with increasing statistical reliability. For the group which becomes abnormal, the rate of progression of disease can be measured, and from the entire group there will be data which will yield estimates of incidence of arteriosclerotic and hypertensive cardiovascular disease for a more representative population group than has hitherto been studied.

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New Jersey Local Health Units Bill

The first bill introduced into the 1951 New Jersey State Legislature is a permissive health district bill. Developed out of the recommendations of the Governor's Committee on Local Health Administration, it gives communities a number of choices in organizing their local health services. These are:

1. Separate municipal organization as at present.
2. A consolidated health district made up of two or more municipalities. This would be independent of county government.
3. A county local health district to include some or all of the municipalities of a single county. In this case the district would be affiliated with the county government but its jurisdiction would extend only to those municipalities included in the district.

The central idea of the bill, according to its sponsors, is that qualified, full-time public health personnel can take care of the public health needs of a population much larger than is found in most New Jersey communities. By combining with other communities and contributing its reasonable share of the cost, a community will be able to obtain the benefits of expert public health service, and often without substantially greater expenditure than at present for service that is often inadequate.

Effective Use of Penicillin To Reduce Contamination in Sputum Concentrates To Be Examined for Tubercle Bacilli*

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CONTAMINATION is a major cause of failure in cultural tests for tubercle bacilli in specimens collected from the general public and sent by mail to a central laboratory. This hazard might be partly eliminated by penicillin, since the principal contaminants are penicillin-sensitive, whereas the tubercle bacillus itself is relatively resistant.[1] A brief but encouraging experience with the isolation of tubercle bacilli from sputum concentrates treated with 100 units of penicillin [2] and the numerous reports on the growth of mycobacteria in the presence of penicillin [3-19] prompted the following study.

Materials and Methods

Thirteen thousand and thirty-one specimens of sputum were examined for tubercle bacilli during the period of December, 1948, to January 1, 1950. Approximately 80 per cent came from non-hospitalized patients and were in transit for from 2 to 8 days. All specimens were treated as follows: (1) homogenization with an equal volume of 4 per cent sodium hydroxide for 15 minutes in a three dimensional shaking machine; (2) centrifugation at a relative centrifugal force of 1,800–2,000 for 20 minutes; (3) neutralization of the sediment with HCl in the presence of phenol red; (4) inoculation on three or four tubes of Löwenstein-Jensen medium. Direct or concentrate smears stained by the Ziehl-Neelsen method were examined in all cases, and animal tests were made whenever requested or indicated.

The total period of exposure to sodium hydroxide averaged one hour. The neutralized sediments of 328 unselected specimens had an average volume of 1 to 2 ml. and the pH of multiple random samples ranged between 7.0 and 7.8. Seeding of cultures was performed in a sterile room and cultures were incubated at 37° C. after having been slanted overnight at room temperature. Colony counts were made at 1, 3, 5, and 8 weeks, and all positive cultures were confirmed by Ziehl-Neelsen preparations. Contaminated culture tubes were counted and discarded when first seen.

A total of 3,554 sputa were so treated at various intervals and seasons throughout the year. The remaining 9,477 sputa were treated, in addition, with penicillin. Commercial crystalline penicillin-G diluted in sufficient sterile water or normal saline to provide a solution containing 200 units per 0.1 ml. was added in 0.1 ml. amounts to the neutralized concentrates just before inoculation of the culture medium.

Effect of Penicillin on the Rate of Contamination and Growth of Tubercle Bacilli in Cultures of Sputum Concentrates

Table 1 summarizes the results obtained in a preliminary study with equal

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., November 3, 1950.

TABLE 1

Effect of Penicillin on the Rate of Contamination and the Recovery of Tubercle Bacilli in Cultures of Sputum Concentrates

	Preliminary study				*Complete 13 month series*			
	Untreated		*Penicillin 200 units*		*Untreated*		*Penicillin 200 units*	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Specimens	925		925		3,554		9,477	
Tubes inoculated	3,030		3,030		12,720		34,356	
Tubes contaminated	501	16.53	268	8.84	2,615	20.56	3,088	8.99
Positive cultures	148	16.00	165	17.84	608	17.00	1,932	20.38
Positive cultures first visible at								
3 weeks		43.57		39.39		47.51		35.53
5 weeks		39.86		44.85		37.75		47.28
8 weeks		17.57		15.76		14.74		17.19
Positive cultures								
with less than 10 colonies		23.64		17.58		19.07		21.06
with 10–100 colonies		24.30		39.39		32.23		34.26
with 101–300 colonies		6.76		10.30		11.51		14.49
with more than 300 colonies		41.21		32.74		37.17		30.17

portions of split concentrates. Each neutralized sediment was thoroughly shaken and then divided into two equal parts, one of which was treated with 200 units of penicillin and the other left untreated. Each portion was cultured on three tubes of Löwenstein-Jensen medium and incubated and examined in the same manner. The number of contaminated cultures decreased approximately 50 per cent and the detection of tubercle bacilli was more successful in the penicillin treated specimens. The rate of growth of tubercle bacilli was essentially the same in both series.

The results of the examination of the 13,031 unselected sputum specimens are also summarized in Table 1. The findings are comparable to those obtained in the preliminary study except that a trend toward a slower rate of growth of tubercle bacilli is evident in the penicillin treated series. The number of culture tests reported to physicians as "unsatisfactory because of contamination" was 10.69 per cent in the untreated series and 5.95 per cent in the treated series.

Effect of Penicillin on the Flora of Contaminating Microörganisms in Cultures of Sputum Concentrates

Two hundred and sixty-five neutralized concentrates prepared with sodium hydroxide as described above were each divided into two equal parts; one was treated with 200 units of penicillin. Each part was seeded on three tubes of Löwenstein-Jensen medium, incubated at 37° C., and examined at intervals of 1, 3, 5, and 8 weeks. Each morphologically distinct type of contaminating microörganism was isolated in pure culture and identified by appropriate bacteriologic methods.

Table 2 shows the principal contaminants that were found. Penicillin caused a marked reduction in the total number of contaminated cultures by virtually eliminating alpha, beta, and nonhemolytic streptococci and Gram-positive bacilli.

DISCUSSION

The success of cultural tests in the laboratory diagnosis of tuberculosis depends on the preservation of tubercle bacilli and the elimination of contaminating microörganisms. The choice of methods varies with local circumstances such as the populace from which specimens are collected, methods of collection and transportation, types of specimens, and the number of tubercle bacilli usually encountered.

TABLE 2

Major Groups of Contaminating Microörganisms Isolated from Untreated and Penicillin Treated Portions of Divided Sputum Concentrates

	Untreated No.	*Treated with 200 units penicillin* No.
Specimens	265	265
Specimens contaminated	86	26
Contaminants isolated	94	27
Streptococci	47	2
Gram-positive bacilli	25	5
Coliform group	8	9
Proteus	5	3
Pseudomonas	2	2
Molds	2	0
Unidentified	5	6

Material received in this laboratory consists largely of specimens collected from the general public and sent by mail. The risk of secondary contamination is increased, and bacteria of many types have an opportunity to multiply during transit. The rate of contamination is high and the number of specimens in which tubercle bacilli are found is low. Consistently unsatisfactory results have been experienced in the cultural examination of 10 to 30 per cent of sputum specimens. The loss is 10 per cent when all the tubes inoculated from each concentrate are overgrown by contaminants and the cultural test is a complete failure. The loss is 30 per cent if all the culture tubes contaminated to some degree are counted. Twenty per cent of the total tubes inoculated each year are discarded for this reason.

With the use of penicillin the contamination rate may be halved. The number of additional positive specimens revealed by this procedure alone is approximately 3 per cent of the 10,000 or more specimens examined each year, and 10 to 15 per cent of the 2,000 or more positive cultures isolated. This improvement has been duplicated time after time by shifting from treatment with penicillin to omission of penicillin, and is independent of chance, season of the year, type of specimen, and technical bias.

For five years our cultural technic has been standardized within the framework of sodium hydroxide digestion, mechanical shaking, centrifugation, neutralization, and inoculation of at least three tubes of Löwenstein-Jensen medium. The concentration of sodium hydroxide and the duration of its action (with and without incubation) and the technics of shaking, centrifugation, and neutralization have all been subject to variation and study. However, nothing that has been accomplished within these limits has approached the improvements produced by penicillin.

The duration of penicillin activity in neutralized sputum concentrates has been studied by the Oxford-cup technic employing poured plates inoculated with a penicillin-sensitive strain of staphylococcus. Sediments treated with 10, 50, 100, 300, and 500 units of penicillin and seeded on Löwenstein-Jensen medium were incubated at 37° C. and tested for penicillin activity at regular intervals. Control sediments not treated with penicillin showed no inhibition of the growth of staphylococci, whereas all the test specimens showed inhibition for at least 6 to 10 days. When tubercle bacilli were added to the sediments, inhibition of staphylococci was evident for 3 to 6 days. Similar results were obtained with penicillin in Dubos-Davis oleic-acid albumen liquid culture medium.

Liquid cultures of routine sputum concentrates can be successfully transferred to Löwenstein-Jensen medium with the

use of penicillin. Sixty per cent of the positive cultures in 407 specimens thus treated were visible within 3 weeks. In this same series, 40 per cent of the positive specimens initially seeded on Löwenstein-Jensen medium became visible during the same period. Without penicillin, the transfer of liquid cultures to solid medium is futile because 80 per cent or more of such subcultures are completely overgrown by contaminants.

Penicillin is effective when incorporated into Löwenstein-Jensen medium. Concentrations ranging from 10 to 125 units per ml. of medium (prior to inspissation) definitely reduce contamination, but the limitations of this method of using penicillin have not yet been adequately tested.

We fully agree with those who warn against the use of penicillin in culture media containing the wetting agent, Tween-80. In our experience this combination exercises a profound bacteriostatic effect upon the growth of tubercle bacilli. In fact, the phenomenon is so striking *in vitro* that one wonders whether or not the combination of penicillin with suitable wetting agents might not be effective against tubercle bacilli *in vivo*.

CONCLUSIONS

Specimens of sputum collected from the general public (13,031) and mailed to a central laboratory were examined throughout a 13 month period.

1. Tubercle bacilli survive in sputum concentrates treated with 100–200 units of penicillin per ml. and their final recovery by culture on a solid medium is not significantly affected.

2. The rate of contamination of cultures grown on Löwenstein-Jensen medium is reduced 50 per cent by the use of penicillin and the number of positive cultures is increased.

3. The early rate of growth and the final volume of growth of the bacilli diminish slightly in penicillin treated cultures.

4. Liquid cultures can be transferred successfully to a solid medium with the use of penicillin.

5. The action of penicillin in neutralized sputum concentrates endures from 3 to 10 days in Löwenstein-Jensen cultures incubated at 37° C.

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New A.P.H.A. Membership Directory

A Directory of Members, Fellows and other constituents of the American Public Health Association will be published in 1951. This project will be undertaken jointly by the Association and the Health Publications Institute, Inc., of Raleigh, N. C., the Association being responsible for the compilation of the contents of the Directory, and Health Publications Institute assuming responsibility for its publication and sale. The last membership roster appeared in print in 1946.

It is planned to include in the main portion of the new Directory an alphabetical listing showing the name, degrees, current position, address, membership classification, and Section affiliation of the entire membership. The back portion will contain a listing of members in geographical order.

Information cards calling for data to be published in the Directory will be mailed to all members and Fellows of the Association at an early date. Each person affiliated with the A.P.H.A. is requested to be alert for his Directory information card and to fill it in and return it promptly in order that his listing will be complete and accurate. It will not be possible or feasible to secure the information to be included in the Directory from existing A.P.H.A. membership and Fellowship records, so it is important that every member submit his own data on the official Directory information card.

An Interpretation of Results Obtained from Cultivation of Sputum Samples for *M. tuberculosis*[*]

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ONE of the variables in tuberculous disease in man is the quantity of *M. tuberculosis* in material which, supposedly, should contain the organism. The major manifestation of this human infection is pulmonary tuberculosis and individuals so affected commonly discharge sputum in variable quantities. Although *M. tuberculosis* can often be demonstrated by smear examination of sputa, not infrequently there are tuberculous patients in whom the use of this simple laboratory procedure fails to reveal the infectious agent. The utilization first of animal inoculation and later the planting of concentrates of sputum on culture media showed that *M. tuberculosis* frequently was present, although in numbers too few to be found in smear preparations. A deeper probing of the problem showed that frequently persons who presented roentgenographic evidence characteristic of tuberculous disease and who were unaware of raising any sputum would discharge tubercle bacilli, as shown by culture or animal inoculation, in fasting gastric contents—an indirect method of recovering small quantities of sputum which had been swallowed during the sleeping hours. Moreover the refined and more complicated laboratory procedures still give unpredictable results. No bacilli may be found on repeated examinations in some persons who raise considerable amounts of sputum and who even may show increase of disease roentgenographically, whereas in others who evidence stable roentgenographic shadows of limited extent and who assert that they raise no sputum, *M. tuberculosis* may be demonstrated in a majority of examinations of fasting gastric contents.

With such variable results, even with the use of refined laboratory procedures, it is understandable that considerable confusion exists as to the significance of the results of laboratory examinations, and in this respect the introduction of bacteriostatic agents in the treatment of tuberculous patients renders the problem even more complex. There are two reasons for the impetus given to the growing of *M. tuberculosis* from sputum specimens because of the use of tuberculostatic agents. The first reason concerns the problem of the development of resistance of *M. tuberculosis* to the chemotherapeutic agent and the second relates to a quantitative determination of the infectious agent during and after a regimen of therapy. Under these conditions the choice of a medium for the growing of *M. tuberculosis* becomes extremely important, and the only way by which the efficiency of a medium can

[*] Presented before the Laboratory Section of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., November 3, 1950.

be determined is from the results obtained in its routine use with smear-positive and smear-negative specimens of sputa. The data obtained from a comparative study of several media on 447 smear-positive and 1,710 smear-negative specimens will be used as a basis for a discussion of the problem of growing *M. tuberculosis*.

METHOD AND PROCEDURES

Since the specimens used in this study contain a mixture of substances and a considerable variety of bacterial flora, it is necessary to homogenize the specimens as well as to destroy the bacteria other than *M. tuberculosis*. A number of procedures may be used to attain this end, and the following method is the one which was used in the present study:

1. All specimens are collected in sterile bottles;
2. To each specimen is added an equal volume of 3 per cent NaOH;
3. Each specimen is then agitated for 15 minutes in a converted paint mixer[1];
4. Specimens are then placed in a water bath at 37.5° C. for 30 minutes;
5. All of each specimen is then centrifuged at 2,000 r.p.m. for 15 minutes;
6. The supernatant fluid is decanted and the sediment is neutralized with N/1 hydrochloric acid with the use of phenol red as an indicator;
7. The sediment is resuspended in sterile normal salt solution and is again centrifuged at 2,000 r.p.m. for 15 minutes;
8. The supernatant fluid is decanted and all of the sediment is thoroughly mixed in the centrifuge tube in 1 ml. of sterile normal salt solution; and
9. All of the resuspended sediment is distributed, in aliquot portions, by sterile capillary glass pipettes to tubes of culture media.

The specimens used in this study were composed of 72 hr. sputum samples in most instances and of fasting gastric contents. On two successive days a sample of fasting gastric contents was obtained and the sediment from these samples was pooled for culture. The first sample was concentrated, neutralized, and refrigerated until the sediment for the second sample became available. A most important feature in the collection of specimens of sputum is the intelligent coöperation of the patients to save sputum, not saliva, for study; usually it is possible to obtain adequate specimens which will not exceed a volume of 50 ml. when diluted with equal parts of 3 per cent sodium hydroxide. This enables the centrifugation of a specimen in a single sterile centrifuge tube of 50 ml. capacity. A sterile rubber cap covers the centrifuge tube during centrifugation.

Since the introduction of antibiotics in the treatment of tuberculous patients, the demands for growing *M. tuberculosis* have greatly increased. This situation has caused a renewed investigation of the type of culture medium most suitable for the growth of *M. tuberculosis*, and during the past 5 years five different culture media have been suggested. All of these media were utilized in the investigation to be reported in this paper. The composition and the method of preparation of each medium, as used in this study, is presented below and in the presentation of the data the media will be referred to as Nos. 1 to 5.

1. Egg-yolk-potato medium (A.T.S. with slight modification)[2, 6]

Egg Yolk	400 ml.
Potato Water	333 ml.
Malachite Green 1%	10 ml.

a. Potato Water. Add 100 grams of washed, pared, and ground potato to 333 ml. of 8 per cent glycerin water and autoclave in a two-liter flask for 30 minutes at 10 lbs. pressure. Irrigated potatoes should not be used because of their high water content.
b. Fresh hen's eggs are carefully cleaned with wet gauze, immersed in 70 per cent alcohol for 20 minutes and then passed through a bunsen flame. The egg white and yolk are separated in the usual manner without an attempt to remove all of the egg white. As much as 20 per cent of the egg white may be left with the yolk without deleterious effect on the medium.
c. Four hundred ml. of egg yolk, 333 ml. of potato water, and 10 ml. of a 1 per cent aqueous solution of malachite green are thoroughly mixed in a sterile Waring Blendor.
d. The medium is then tubed in 125 x 18

mm. screw-capped test tubes. The tubes are placed in a slanted position for 1 hr. at 90° C. in an inspissator. Several tubes are incubated for 48 hrs. at 37.5° C. to determine sterility.

2. Oleic acid-albumin agar medium of Dubos [3, 6]

a. Distilled H_2O	785.0 ml.
KH_2PO_4	1.0 gm.
$Na_2HPO_4 12H_2O$	6.3 gm. (heat in 100 ml. distilled water to dissolve)
Asparagin	2.0 gm.
Enzymatic digest of Casein (Sheffield NZ Amine Type B)	0.5 gm.
Ferric Ammonium Citrate (.05 gm.)	1.0 ml.
$MgSO_4 \cdot 7H_2O$ (0.01 gm.)	1.0 ml.
$CaCl_2 \cdot 2H_2O$ (0.005 gm.)	1.0 ml.
$ZnSO_4 \cdot 7H_2O$ (0.0001 gm.)	1.0 ml.
$CuSO_4 \cdot 5H_2O$ (0.0001 gm.)	1.0 ml.

Add agar 15.0 gm. Autoclave at 12 to 15 lbs. pressure for 20 minutes.

b. Add aseptically to the agar medium at a temperature of 55° C.

Oleic acid-albumin *	100 ml.	(0.05% oleic acid and 5% bovine albumin)
Glucose	10.0 ml.	(of a 50% solution in 0.01M citric acid sterilized at 12 to 15 lbs. for 10 min.)

Penicillin is added to give a final concentration of 50 units per ml. of medium.

* Dissolve 0.12 ml. of oleic acid (0.1 gm.) in 10 ml. of N/20 NaOH. Add 5 ml. of this solution to 95 ml. of neutral 5% solution of bovine albumin (plasma Fraction V distributed by Armour Laboratory, Chicago) in 0.85% saline. Sterilize by filtration through Seitz Filters.

c. The medium is immediately tubed in 125 x 18 mm. screw-capped test tubes, slanted and allowed to harden. Several tubes are incubated for 48 hrs. at 37.5° C. to determine sterility.

3. Herrold's Egg Yolk Agar Medium [4, 7]

a. Difco Nutrient Agar	30 gm.
Distilled H_2O	750 ml.
Glycerin (reagent grade)	10 ml.
Malachite Green (2% aqueous solution)	10 ml.

The nutrient agar is dissolved in distilled water by the use of heat, and then the glycerin and malachite green are added. The medium is dispersed in 150 ml. or 300 ml. amounts in flasks and is sterilized in the autoclave at 20 lbs. pressure for 20 minutes.

b. Sterile egg yolk is prepared by using only strictly fresh hen's eggs. The eggs are processed and separated in the same way as for medium No. 1.

c. One volume of egg yolk is added to three volumes of nutrient agar base which has been liquefied by heat and cooled to 50° C.

d. The medium is tubed aseptically in 125 x 18 mm. screw-capped test tubes, slanted and allowed to harden. Several tubes are then incubated for 48 hrs. at 37.5° C. to determine sterility.

4. Jensen's Modification of Lowenstein's Medium [5, 7]

KH_2PO_4	2.4	gm.
$MgSO_4 \cdot 7H_2O$	0.24	gm.
$Mg_3(C_6H_5O_7)_2 \cdot 14H_2O$ (Magnesium Citrate)	0.6	gm.
Asparagin	3.6	gm.
Glycerin (reagent grade)	12.0	ml.
Distilled Water	600	ml.
Potato Flour	30.0	gm.
Eggs	1000	ml.
Malachite Green (2% aqueous solution)	20.0	ml.

a. The first 5 ingredients are added to the distilled water in a flask and sterilized in the autoclave at 10 lbs. pressure for 20 minutes. A thick paste is made of the potato flour by adding a small amount of cold distilled water. This paste is added slowly to the boiling salt solution and the boiling mixture is stirred continuously until clear (usually 20 to 30 minutes). Cool to 56° C. before adding the egg fluid.

b. Egg Fluid. Strictly fresh hen's eggs are prepared and broken open in the usual manner. Contents of the eggs are collected in a sterile flask and thoroughly mixed.

c. One liter of egg is thoroughly mixed with one flask (600 ml.) of salt and flour mixture and to this is added 20 ml. of malachite green. The medium is tubed in 125 x 18 mm. screw-capped test tubes. The tubes are placed in a slanted position for 1 hr. at 90° C. in an inspissator. Several tubes are then incubated for 48 hrs. at 37.5° C. to determine sterility.

5. Modified Petragnanni's Medium.

This medium was purchased in culture tubes ready for use from the Difco Laboratories, Detroit, Mich., and the exact composition was not known.

At the time the growing of *M. tuberculosis* was first undertaken in 1947 in the laboratory here at Sunmount, medium No. 1 was chosen for routine use, and since that date many thousands of cultures have provided a considerable experience with this medium. The study of the various media was carried out by adding to the routine procedure, one at a time, a medium to be compared with the routine medium until at least 500 consecutive cultures had been obtained. In each instance the sediment from a specimen was distributed by sterile capillary pipettes in aliquot portions to 4 tubes of culture media, 2 of the routine medium, and 2 of the medium to be compared. All procedures, together with the preparation of the various media, were performed by the same persons who regularly carry on the routine program for the culture of *M. tuberculosis*.

After the sediment had been carefully flowed over the surface of the culture medium all tubes were placed in a slanted position for incubation at 37.5° C. Examination of all cultures was begun one week after the planting, and records of each examination were made at three or four day intervals thereafter. With medium No. 2 the culture tubes were examined microscopically under a magnification of 20X whereas readings of the other cultures were visual. A final reading of each culture was made at the end of 6 weeks.

PRESENTATION OF DATA

In Table 1 are presented the results of the cultures from smear-positive and smear-negative concentrates with a comparison of medium No. 1 to media 2, 3, 4, and 5. With the exception of the comparison between Nos. 1 and 5, failure to obtain growth from some of the smear-positive concentrates was found in each comparative study. The reason for this failure will be discussed later. All media except No. 3 appeared to be equally capable of stimulating growth of *M. tuberculosis*. However, with No. 2 it was necessary to examine the cultures microscopically to identify growth in many instances prior to the 5th week. The growth on No. 1 was more luxuriant and more rapid than on the other media in many instances, and this enabled a visual recognition of growth at an earlier date. The same conditions pertained to the cultures of smear-negative specimens.

One of the unavoidable difficulties in determining the efficiency of any medium in the culturing of *M. tuberculosis* directly from concentrates of sputa is the presence of other types of organisms. Also there is always the possibility that *M. tuberculosis* may be killed if the chemical employed for digestion of a specimen is used in too strong a concentration or the exposure is too long. On the other hand, too little chemical and too short an exposure may not kill the majority of the other bacteria. To avoid some of this difficulty, one or another bacteriostatic agent directed toward organisms other than *M. tuberculosis* was added to all of the media used in this comparative study. In Table 2 is presented the effect of overgrowth by secondary bacteria on the cultures from smear-positive concentrates of sputa. Contamination of cultures accounted for only one-third of the failures to obtain growth, and all culture media failed on occasion except medium No. 5. In this instance growth was also obtained from all specimens with medium No. 1. Aside from the contaminated cultures there were only two instances in which growth failed to appear on either media. In both instances bacilli were difficult to demonstrate in the smear preparations.

There were 17 instances in smear-positive specimens in which growth occurred on one medium and not on the other and in which there was no contamination of either medium. In 10 instances less than 10 colonies appeared

TABLE 1

Results Obtained on Different Types of Solid Media Used for the Isolation of Mycobacterium Tuberculosis from Smear-Positive and Smear-Negative Specimens

Cultures and Amount of Growth	*Media Compared*															
	1		*2*		*1*		*3*		*1*		*4*		*1*		*5*	
	72 Hr. Smear-Positive Sputa															
Total Cultures	*115*				*118*				*108*				*106*			
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Positive Cultures	113	98.3	109	94.8	115	97.5	107	90.7	105	97.1	102	94.4	106	100	105	99.1
More than 50 Colonies	98	86.7	74	67.9	96	83.5	83	77.5	72	68.6	66	64.7	93	87.7	90	85.7
Less than 50 Colonies	15	13.3	35	32.1	19	16.5	24	22.5	33	31.4	36	35.3	13	12.3	15	14.3
	72 Hr. Smear-Negative Sputa and 2 Day Pooled Gastrics															
Total Cultures	*465*				*389*				*431*				*425*			
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Positive Cultures	170	36.6	136	29.3	142	36.5	111	28.5	135	31.3	123	28.5	106	24.9	95	22.4
More than 10 Colonies	112	65.9	85	62.5	87	61.3	60	54.1	92	68.1	80	65.1	66	62.3	53	55.8
Less than 10 Colonies	58	34.1	51	37.5	55	38.7	51	45.9	43	31.9	43	34.9	40	37.7	42	44.2

1. A.T.S. Medium.
2. Oleic Acid-Albumin Agar Medium of Dubos.
3. Herrold's Egg Yolk Agar Medium.
4. Jensen's Modification of Lowenstein's Medium.
5. Modified Petragnanni's Medium (Difco).

TABLE 2

Failures To Obtain Growth from Smear-Positive Specimens

Medium	Number of Cultures	Total Failures		Failures Due to Contamination		Not Contaminated and No Growth Obtained	
		No.	%	No.	%	No.	%
Petragnanni's	106	1	0.94	1	0.94	..	..
A.T.S.	447	8	1.78	4	0.89	4	0.89
Dubos'	115	6	5.2	3	2.6	3	2.6
Lowenstein's	108	6	5.56	2	1.86	4	3.7
Herrold's	118	11	9.3	1	0.80	10	8.5

and it is possible that all of the bacilli happened to be planted on one medium only. Under such circumstances no conclusions could be drawn as to the greater efficacy of one medium over the other. In 7 instances, more than 10 colonies grew out, and of these 5 were failures on medium No. 3. In these 17 instances bacilli were found with difficulty in the smear preparations, and the only failure that could be attributed to an inferior medium was with No. 3. There was no evidence that either the method of concentration or the presence of a bacteriostatic agent in the medium interfered with the growing of *M. tuberculosis*.

The overgrowth with secondary organisms was of greater significance with the smear-negative specimens. Not infrequently, only one or two colonies may grow out in such specimens and often these are not visible until the 5th or 6th week. Even with microscopic examination of medium No. 2, there commonly was no recognizable colony formation prior to the 4th or 5th week. With the smear-negative specimens overgrowth of all culture tubes occurred in 1 per cent. Overgrowth on both tubes of one medium made comparison with the other medium impossible in an additional 2 per cent. In an additional 12 per cent overgrowth occurred on one tube of a medium. This made a total of 15 per cent in which a determination of the possible presence of *M. tuberculosis* was interfered with by overgrowth of secondary organisms, whereas such interference was present in only 2 per cent of the smear-positive specimens. Overgrowth with secondary organisms was as low in medium No. 1 as in any other medium and the medium with the largest number of contaminations was No. 2.

Considerable stress is being given to a rapid detection of the growth of *M. tuberculosis* after implantation on a medium. In the present study, records were kept of the date on which visible growth was observed on all media and also a record of colony formation on medium No. 2 as found from microscopic examination at 20X magnification. Higher magnification on test tube cultures was not found feasible and it was thought best to have all culture media in test tubes rather than Petri dishes. The data relative to the first identification of growth are presented on a percentage basis in Table 3, with the percentages being additive up to the last reading made at 6 weeks.

Microscopic examination of medium No. 2 revealed a significantly greater percentage of positive cultures through the 3rd week than did visual examination of all the other media. Later this difference became less significant. Difficulty was encountered, until considerable experience had been obtained, in microscopic examination of medium No. 2 because of the presence of a considerable number of irregular particles present in the concentrate flowed over the surface of the medium. In several instances colony growth did not progress to visible proportions prior to the last reading of medium No. 2 at 6 weeks. The greatest

TABLE 3

Days after Inoculation That Growth of M. Tuberculosis Was Detected on Different Media. Percentages Are Additive.

Days of Incubation	Percentage of Positive Cultures								
	Medium 1	Medium No. 2		Medium 1	Medium 3	Medium 1	Medium 4	Medium 1	Medium 5
		Micro.	Visual						
	Smear-Postive Sputa								
10	7	30	3	4	5	9	6	11	3
14	42	71	14	42	31	32	29	32	11
21	83	93	50	87	76	78	70	84	80
28	99	98	78	91	88	94	81	96	94
35	100	100	95	99	97	96	93	98	98
42	...	...	98	100	100	100	100	100	100
	Smear-Negative Sputa and Pooled Gastrics								
10	1	7	...	...	...	...	...	3	1
14	9	35	3	4	3	6	4	8	4
21	68	85	29	37	32	60	56	48	38
28	92	96	59	88	72	88	81	83	65
35	100	100	79	96	86	96	95	94	89
42	...	...	89	100	100	100	100	100	100

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4. Jensen's Modification of Lowenstein's Med.
5. Modified Petragnanni's Medium (Difco).

lag in the appearance of visible growth occurred with media Nos. 2, 3, and 5 on cultures from smear-negative concentrates. The data show that visible growth was found in a high percentage of cultures by the 4th week, and it is debatable whether it is urgent to determine growth earlier in a routine bacteriologic service. One of the most significant points of differentiation between *M. tuberculosis* and nonpathogenic acid-fast bacilli is the slower rate of growth of the former.

The major effort in this comparative study was made purposely on smear-negative concentrates since the efficiency of any medium to stimulate growth of *M. tuberculosis* is determined best by the incidence of positive cultures from specimens which contain few bacilli. The few bacilli present in such specimens may, by chance, be planted on one tube only, and in this instance failure to obtain growth on the other tubes would not be the fault of the medium. However, in performing tests on several hundred such specimens there would occur an equal chance of planting bacilli in any tube, and in the end there should be little difference between two media of equal merit in the incidence of positive cultures. A presentation of the incidence of positive cultures, in a comparison of medium No. 1 to media Nos. 2, 3, 4 and 5 is given in Table 4. There were 143 instances in which growth occurred on one and not on the other medium and in which neither medium was overgrown with secondary organisms. Of these, 116 were on medium No. 1 and only 27 on all the other media. Although there were at least twice as many cultures positive on medium No. 1 only as on the medium under comparison only, the greatest difference between the media occurred with Nos. 2 and 3, both agar base media.

COMMENT

It is thoroughly understood by those who have had experience with the growing of *M. tuberculosis* from specimens of sputum that the technical procedures are complicated and require considerable experience before competence can be gained. In this regard fasting gastric contents should be considered from its

TABLE 4

Distribution of Postive Cultures from Smear Negative Sputa and Pooled Gastrics. Medium 1 Compared with Media 2, 3, 4, and 5.

Media Compared	Number of Cultures	Growth on	Positive Cultures	
			Number	Per cent
1 to 2	465	Total	184	39.6
		Both Media	122	26.2
		Medium 2 only	14	3.0
		Medium 1 only	48	10.3
1 to 3	389	Total	147	37.8
		Both Media	106	27.3
		Medium 3 only	5	1.3
		Medium 1 only	36	9.2
1 to 4	431	Total	144	33.4
		Both Media	114	26.4
		Medium 4 only	9	2.1
		Medium 1 only	21	4.9
1 to 5	425	Total	115	27.0
		Both Media	86	20.2
		Medium 5 only	9	2.1
		Medium 1 only	20	4.7

1. A.T.S. Medium.
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5. Modified Petragnanni's Medium (Difco).

content of sputum. Failure to be meticulous in the details of technic can give inferior results. Simple procedures such as too long an exposure to NaOH, the use of too little concentrate from a specimen for planting, poorly prepared media, and the prevention of an exchange of gases because of too perfect a sealing of the medium, each may have a deleterious influence on the growth of *M. tuberculosis*. These technical details represent but one facet in the problem of growing this organism.

Sufficient emphasis has not been placed upon the great variation commonly present in the discharge of tubercle bacilli in sputum and upon the fact that failure to grow *M. tuberculosis* does not necessarily indicate the bacterial population within lesions. The presence of sputum in a tuberculous patient indicates that a sloughing necrotic tuberculous lesion is present in the lung: however, there is a tremendous variation in the numbers of bacilli present in such lesions. Furthermore the bacilli may or may not be uniformly distributed within the necrotic debris which is sloughing. Also the amount of slough discharged has a bearing on this problem. A small amount of slough from a small necrotic focus may contain organisms in considerable numbers whereas a considerable discharge from a larger necrotic mass may contain few or no bacilli on one occasion and large numbers of bacilli on another. There is need to have a better understanding of these variables for frequently great emphasis is placed upon the significance of the results of random cultures for *M. tuberculosis*.

With the more frequent surgical removal of portions of lung for tuberculosis, the possibility presents itself for a correlation between preoperative cultures of sputum, cultures direct from removed lesions and microscopic demonstration of bacilli in tissue sections. This work will be reported in detail at a later date. Briefly our experience has shown the following variations. Numerous negative cultures were obtained before operation in some cases in which no bacilli, few bacilli, or large numbers were present within the actual lesions. With heavy growth of bacilli from sputum specimens, bacilli were present in considerable numbers within lesions

although some contained few organisms, and in some in which bacilli were demonstrated in considerable numbers the distribution within the necrotic material varied tremendously. In one case numerous preoperative gastric cultures were negative. Culture from a large necrotic lesion yielded two colonies and upon microscopic examination of this lesion single bacilli were found after long search. In another case the concentrate from a single preoperative sputum gave 2 colonies, from a preoperative fasting gastric content no growth, from material from the lesion planted without concentration on culture medium, 2 colonies and microscopic search of tissue sections revealed only an occasional bacillus. From these observations it is apparent that there may or may not be close correlation between the results obtained from culture of sputum and the actual bacillary content of tuberculous lesions. Therefore great caution is necessary in conclusions drawn from the failure to obtain, on many trials, growth of *M. tuberculosis* on cultures. Usually these variables relate directly to the pathologic condition of the pulmonary lesions. Furthermore, a tuberculous pneumonic lesion in the lung may be necrotic, may have a patent bronchial communication, may contain large numbers of tubercle bacilli and yet may not be sufficiently softened-up to permit sloughing through the connecting bronchus. Failure to grow bacilli from sputum, including gastric contents, could not represent the actual pathologic condition, and situations such as these are much more common than are generally realized.

It is common experience to obtain growth of a somewhat variable number of colonies of *M. tuberculosis* on occasion in serial cultures of sputum over a period of months. The clinical significance of such findings frequently gives rise to a considerable divergence of opinion. In this situation two facts seem certain. First a sloughing necrotic pulmonary lesion is present, otherwise bacilli would hardly be present. Second, tuberculous patients can live for long periods of time in a state of good health in spite of the presence of sloughing pulmonary lesions. The uncertainty of this situation relates to unpredictable events which may occur in the presence of unhealed and open tuberculous disease.

The culture medium which is selected for the propagation of *M. tuberculosis* should be chosen to meet circumstances. Studies of cultures once propagated in the laboratory may require only a simple synthetic medium whereas such a medium is entirely unsuitable for use in the growing of bacilli from smear-negative concentrates of laboratory specimens. As is shown in the data presented above, any of several media will yield growth in a high percentage of smear-positive specimens. However, some of these media were distinctly inferior in the growing of bacilli from specimens in which few organisms are present. It seems reasonable that in a laboratory in which cultures are made for diagnostic purposes the whole program should be geared to the growing of small numbers of organisms. The medium should be as simple and as easily prepared as is consistent with efficiency for growing the organism. In this respect medium No. 1 appears to be equal to if not superior to any of the media used in the comparative study. It appears evident that the use of egg-yolk, potato, glycerin and malachite green suffices to meet growth requirements and that the addition of other substances is not essential. One feature in this study was the preference for medium No. 1 by the persons who actually did the work, and this preference centered on the ease of preparation of the media. The purpose of this study was to put all of the media, without preference, under the actual working conditions of a routine diagnostic service and the intent was to select for use the

medium proved to be most satisfactory. As a result of the study no evidence was produced which would warrant a change from the medium which had been selected primarily for routine diagnostic use.

SUMMARY

Although the growing of *M. tuberculosis* from sputum specimens requires good technical procedures for processing specimens, with meticulous attention given to details and a proper culture medium for growing the organism, the interpretation of the results obtained must be considered in relation to the pathologic condition of pulmonary lesions. There frequently is little correlation between the bacillary content of tuberculous lesions and the amount of growth obtained from sputum specimens on the best of culture media. This is due primarily to the irregular distribution of bacilli in necrotic lesions and to the extremely small amount of debris that may be sloughed from such lesions. This disparity between the results of cultures and the bacterial content of necrotic lesions should not be taken to indicate that no bacilli are being sloughed from such lesions. The unpredictable results obtained from culture of smear-negative sputa or of fasting gastric contents are largely influenced by the status of the pathologic lesion. Because of this situation caution should be exercised in the interpretation of "conversion" of sputum from the results of smear or culture methods.

A comparison of five different media tested in a routine diagnostic service on 2,157 specimens is presented. Each medium tested gave a high percentage of growth of *M. tuberculosis* from smear-positive specimens. Superior results were obtained with the ATS medium, slightly modified, in cultures from smear-negative specimens.

The procedures used for growing *M. tuberculosis* in a routine diagnostic service should be geared to the most efficient method for obtaining growth when bacilli are present in small numbers. As simple a procedure as is consistent with efficiency is to be preferred. The results obtained from the technic of preparation of specimens and media and the comparison of the slightly modified ATS medium with other media presented in this paper indicate that the bacteriologic procedures originally adopted in this laboratory in 1947 for growing *M. tuberculosis* are equal to if not superior to other procedures which have been suggested.

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The Local Health Department—Services and Responsibilities*

An Official Statement of the American Public Health Association Adopted November 1, 1950

FOREWORD

THE American Public Health Association, in preparing this statement, has attempted to summarize as completely and concisely as possible those services and responsibilities which can be incorporated into efficiently organized and adequately staffed full-time local health departments. This is not a statement of an idealistic philosophy but a summary of a working plan, model in its structure yet sufficiently flexible so that, within the limitations of existent legislation, local health departments having initiative and interest may adopt it. While few local health departments at this time encompass all of these services and responsibilities, and while it is recognized that considerable variation will exist in different states and regions, it is expected that gradual evolution together with the passage of federal, state, and local legislation, may bring about in many localities an ever increasing scope of activity such as is described in this statement.

The local health department is the basic service unit in the administration of public health. Through daily contact with the public the local health department obtains firsthand information concerning local health needs, and is responsible for providing its community with direct services. A unique combination of medical, dental, nursing, engineering, and other technical services, together with statistical, educational, managerial, and administrative skills, is made available through a full-time efficient and well staffed local health department. Its personnel is specially trained to utilize the health sciences in the public interest through effective community organization.

Further progress in the development of public health services is dependent not only on advancing knowledge in the health sciences but on the improvement of its application. This requires the establishment of new local health departments to provide nation-wide coverage, the strengthening of existing local health departments, the enlargement of their scope of service, and the development of highly skilled staffs. Local health units will meet their responsibilities most successfully if they have a program built on the needs of the people and the necessary facilities and qualified personnel with which to work.

Community health programs are not static but undergo a continuous process of change and development. The program of the local health department should be flexible, designed in terms of community health needs and resources and capable of modification to meet new public health problems as they become recognized.

The concept of the services of the local health department has undergone considerable change. As a result of advancing medical knowledge and pub-

* This statement supplants a portion of the declaration "Desirable Minimum Functions and Organization Principles for Health Activities" adopted October 9, 1940, and supplemented December 19, 1941, and January 29, 1943.

lic health practice, there has been a sharp decrease in morbidity and mortality from infectious diseases, particularly in infancy and childhood and the early years of adult life. Because of the marked changes in the age distribution of the population and in the spectrum of our health problems, the theory and practice of public health has expanded to include not only prevention of the onset of illness, but also prevention of the progress of disease, of associated complications, and of disability and death.

The "desirable minimum functions" of local health departments—vital statistics, sanitation, communicable disease control, laboratory services, maternal and child health, and health education [1]—have been modified recently to include the control of chronic diseases.[2] Accident prevention, the hygiene of housing, industrial hygiene, school health services, mental health, medical rehabilitation, and hospital and medical care administration are other areas of service and responsibility which have been incorporated into the programs of an increasing number of local health departments. Definitions of local health services and responsibilities based on limited categories of activity have become quickly outdated as a result of this rapid development of health administration. It is essential, therefore, to define the optimal responsibilities of the local health department, to list the general types of service provided, and to indicate the specific methods utilized in the solution of local public health problems.

Responsibility for community health rests jointly on the local health department, the medical, dental, and allied professions, the hospitals, departments of education, voluntary health agencies, and the public generally.

The health officer has the opportunity to make a unique contribution through his utilization of epidemiological knowledge to develop programs for the maintenance of health and control of disease. He has, moreover, an overall responsibility to the public in matters affecting community health; he meets this responsibility by rendering certain direct services and by providing stimulation and leadership to assure that other necessary services and facilities are made available by appropriate means. In order to achieve an effective program, the local health department should provide the following general types of service and utilize the following methods:

I. *Recording and Analysis of Health Data*

A variety of data is necessary to define and locate local health problems and assure sound planning for optimum health. These include information about the characteristics of the population, the incidence and prevalence of disease and impairment, and the disability and mortality resulting from them. Equally important is accurate information on the availability, utilization, and quantitative and qualitative adequacy of health personnel, facilities, and services.

In order to obtain such information, the local health department utilizes various procedures, such as:

1. Recording and analysis of reports of births, deaths, marriages, divorces, and notifiable diseases.
2. Maintenance of registers of individuals known to have certain specific long-term diseases and impairments.
3. Conduct of special surveys to determine the prevalence and resultant disability from various diseases.
4. Collection and interpretation of morbidity data from such sources as clinics, hospitals, organized nursing services, prepayment plans, industry, and workmen's compensation and disability insurance programs.
5. Maintenance of continuing records on the number and qualifications of all types of health personnel, the quantitative and qualitative resources of available facilities, and the types and extent of health services provided through various voluntary and public programs.

6. Periodic evaluation of community health needs and services.

II. *Health Education and Information*

An informed and educated public is one of the best guarantees of effective health service. The health department carries on an extensive and continuous program of public education and information on how to achieve optimum health, how to prevent illness and disability, and how to make use of available facilities and services. To this end the health department:

1. Stimulates the public to recognize health problems that exist, to study the resources available for meeting the problems, and to develop and put into action programs designed to solve them.
2. Coöperates with and assists official and voluntary organizations such as departments of education and civic, youth and other community groups in the development of their health programs.
3. Provides individual instruction by public health nurses and other personnel, as in the case of families in which communicable disease has occurred, of mothers attending well baby conferences, or of diabetic and other patients who are taught to follow the regimen prescribed by the family physician.
4. Organizes lectures, classes and courses, such as mothers' and fathers' classes, courses for food handlers, classes for diabetics, and lectures to community groups.
5. Uses mass educational and information media such as newspapers, magazines, pamphlets, movies, radio, and television.

The health department is also responsible for developing a well rounded program of professional education, designed to assist the local health professions to maintain and improve the quality of service. A variety of methods are used for this purpose, including distribution of literature, arrangement of lectures and postgraduate courses, and encouragement of organized educational relationships with medical schools and teaching centers.

III. *Supervision and Regulation*

The local health department has supervisory and regulatory responsibilities covering various fields, such as the protection of food, water, and milk supplies, the control of nuisances, the sanitary disposal of wastes and control of pollution, the prevention of occupational diseases and accidents, the control of human and animal sources of infection, the regulation of housing, and the inspection of hospitals, nursing homes, and other health facilities. In carrying out these functions, health departments use a variety of methods, of which probably the most important is public education and individual instruction. Others include the issuance of regulations, laboratory control, inspection and licensure, revocation of permits and, as a last resort, court action.

IV. *Provision of Direct Environmental Health Services*

In many areas the local health department is responsible for the direct operation and management of environmental health services directed toward the control of communicable diseases such as malaria, hookworm, murine typhus, and enteric diseases. The services provided may include construction of pit privies, drainage, and larvicidal treatment of mosquito-breeding areas, residual spraying of homes for insect control, rat stoppage of buildings, and other insect and rodent control measures.

V. *Administration of Personal Health Services*

Local health departments should be responsible for the provision or administration of a variety of personal health services. These include:

1. Immunization against infectious diseases and other preventive measures such as the application of fluorine to children's teeth.
2. Advisory health maintenance service, as in child health conferences, prenatal clinics, parents' classes, and public health nursing visits.
3. Case finding surveys of the general population, such as chest x-ray surveys, serological

tests for syphilis, cancer detection programs, and school health examinations. Adult health inventories and "multiphasic" surveys for the detection of various groups of diseases may also be included.

4. Provision of diagnostic aids to the physician, such as laboratory services and crippled children's, cancer, cardiac, and other diagnostic and consultation clinics.
5. Provision of diagnostic and treatment services for specific diseases such as syphilis, tuberculosis, dental defects in children and expectant mothers, and orthopedic, cardiac, and other crippling impairments in children.

There is a definite trend toward increased local health department responsibility in the control of chronic diseases, in the development of mental hygiene services, in the provision of bedside nursing care in the home, in the expansion of health services for school children, and in the administration of public programs providing general medical care for designated groups of the population.

As new programs of public medical care are developed, their administration can logically be entrusted to the local health department. The well organized and adequately staffed local health department is fitted for this task because of its strong combination of medical and organizational skills, its accustomed responsibility for a public trust, its emphasis on promotion of health and prevention of disease, and its understanding of the organizational elements required to achieve a high quality of care.[3-5]

VI. *Operation of Health Facilities*

The local health department can fulfil its responsibilities most effectively if it operates one or more well equipped health centers providing adequate space for administrative offices, clinic facilities, and an auditorium or classrooms for public and professional education. Health departments may also carry direct responsibilities for the administration of general or special hospitals.

VII. *Coördination of Activities and Resources*

In addition to administering specific programs and rendering direct service, the local health department has the general responsibility of providing effective leadership in meeting all types of community health needs. The health department should make available its technical and administrative resources to provide accurate data as a basis for sound planning, to help inform and educate the public, and to assure that the necessary measures are taken by public and private agencies to improve and coördinate the community's health facilities and services. A primary task of the local health department should be to encourage the fullest possible coördination of the work of the various official and voluntary agencies so as to avoid unnecessary duplication and overlapping both in types of activity and in geographical coverage, and to assure efficient and economical administration of both public and private funds for health.

There are numerous examples of excellent health department activity along these lines, such as the development of combinations of voluntary and official nursing services[6]; action to coördinate the activities of the health department, voluntary agencies, hospitals, and the medical profession in civil defense and emergencies such as epidemics of poliomyelitis or disasters due to flood, fire, etc.; coördination with departments of education, the medical and dental professions, service clubs and other agencies to improve school health services; and the development of organized community action to obtain needed additions and improvements in local facilities such as general hospitals, chronic disease facilities, rehabilitation centers, and the like.

The local health department should have close liaison with other agencies or be represented on interdepartmental or regional boards dealing with public

water supplies, sewage and refuse disposal, control of atmospheric pollution, housing, city planning, hospital planning, zoning regulation, development of recreational areas and other public programs which have significant implications for community health.

Effective implementation of these general responsibilities requires that local health department personnel should in every respect be members of the community in which they live and work, and should participate actively in community functions in health and other fields. It requires also that the local health department maintain close cooperative relationships with the medical and other health professions, voluntary health associations, public and private educational and social welfare agencies, and community organizations such as business, farm, labor, and other consumer groups. The most effective expression of such coöperative relationships is achieved by a broad community health council which represents these various groups and provides an organizational basis for close coördination of activities and resources.

HEALTH DEPARTMENT ORGANIZATION AND STAFF

The local health department should have the status of an executive department of local government, administered by an executive director who is a full-time medical health officer with formal training in public health administration. The health officer should be advised by a board of health whose members are representative of the various groups and health professions in the community. No single professional or business group should constitute a majority. In addition to advising and assisting the health officer, the board of health may enact local regulations.

As executive director of the local health department, the health officer should be primarily concerned with the development of plans and policies, the provision of overall guidance and stimulation to his staff and the effective coordination of their activities.

The varied functions of the local health department require the utilization of different types of specialized personnel. The types of personnel needed depend primarily on the scope of services, and may include public health nurses, engineers, sanitarians, veterinarians, laboratory workers, health educators, statisticians, physicians, dentists, nutritionists, social workers, office managers, clerical personnel, medical care and hospital administrators, and so forth. They should be employed in sufficient numbers to meet community needs, and this in turn depends on the characteristics of the community, the nature of its specific health problems, the size of the population served, and the comprehensiveness of the services provided. The staff of the health department will be effective only if they are well trained, well paid, chosen on the basis of a merit system that is responsive to the special needs of public health service, and provided with adequate leadership on the part of the health officer.

RELATION TO STATE (PROVINCIAL) AND FEDERAL HEALTH AGENCIES

The local health department has no direct administrative relationship or responsibility to federal health agencies. All relationships between local health departments and federal agencies are carried on through the medium of state or provincial health departments.

The local health department is accountable to the state health agency for adequate performance of those programs which are delegated to it by state law or regulation. It must meet the minimum standards set by the state health department and should be subject to state supervision.

On the other hand, local health departments should be allowed ample

scope for the initiative and creative activity of the health officer and his staff. A primary responsibility of the state health department is the strengthening of local health departments in terms of personnel, facilities, services, and prestige. To fulfil this responsibility, the state health department should:

1. Provide a state-wide coördinated public health program with clear objectives for the guidance of local health departments.
2. Develop an appropriate plan for the coördination of local health services with related hospital and medical programs which may be developed on a regional basis.
3. Provide financial assistance to supplement the resources of local health departments.
4. Make consultation and other special services available.
5. Assist localities to set up demonstrations on a temporary basis.
6. Establish minimum and stimulate optimum standards of performance.
7. Develop a recruitment and training program for local health department personnel.
8. Delegate certain legal responsibilities of the state health agency, in so far as feasible and practical, to well organized and adequately staffed local health departments.
9. Carry on all relationships with local citizens and groups through the medium of or in coöperation with the local health department.

Local health departments should be given a voice in the determination of policies and plans for the development of state public health programs. This can best be accomplished by the state health department through regular meetings with the health officers and other personnel of local health departments. Such meetings, similar to those conducted by federal health agencies with the state and territorial health officers and state directors of various health programs, can do a great deal to clarify relationships, achieve closer coördination of programs, and enlarge the responsibilities and strengthen the role of the local health department.

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Industrial Safety in an Atomic Age

Control of Radiation Hazards in the Atomic Energy Program, by the U. S. Atomic Energy Commission shows why development and production of radioactive materials cannot—and should not, for safety—be a small-scale operation. The report outlines the precautions taken in routine and special activities at the plants of the AEC to protect the health of employees. "This report summarizes the results of work done and the means used to protect employees, the public, and all others who might be exposed in any way to the potential hazard of nuclear radiation originating in the national atomic program." The report is in non-technical language, liberally illustrated with good photographs. U. S. Gov. Ptg. Office, Washington, 55 cents.

State Organization for the Total Field Training Program

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THANKS to the W. K. Kellogg Foundation, a number of us early this year had the privilege of getting together in Ann Arbor, Mich., to exchange ideas on the subject of field training. It was a satisfying experience and we covered a lot of ground. We were agreed on many points and differed on some.

We agreed that supervised field training for people entering the public health field is a desirable experience. This training may precede or follow professional public health academic training. We agreed fairly well that the organization of a field training program is best undertaken on a state-wide basis. There is cost involved and the state is better able to meet this expense. It is when we come to the form of the organizational structure of a state-wide field training program that differences in practice and thought, and even in purposes begin to appear.

In the light of these differences, it seems to me that we must recognize clearly several realistic facts and principles in connection with this subject. States differ in their needs for training. They differ in their facilities for training. They differ in the matter of available funds to support a training program.

To be sure, we would all like to conduct the best program possible within our separate abilities and resources. We would like to agree on certain standards that will assist in maintaining a high quality of service, but in this desire we must not forget that considerable latitude must be permitted. Otherwise, many states will be prohibited from having a field training program. These are facts to be kept in mind when considering a national system of accrediting state training programs and local training stations.

STATE LEADERSHIP

The advantages of state leadership in a field training program are obvious from the standpoint of financing and in serving the various areas of the state. Should this leadership come from the state department of health or from the university? In most instances, it is the former. However, this depends upon where the major interest lies. If the state health department is but mildly interested and the university is vitally interested from the standpoint of a broad education for its public health students and, furthermore, if the university school of public health serves an extensive area beyond the confines of the state, we must recognize the wisdom of university leadership.

ADVISORY COMMITTEE

Whatever single organization leads, the help and interest of others is necessary. The heads of the various schools are concerned—public health nursing, sanitary engineering, as well as the

school of public health. Local health departments, and the state departments of education have an interest. Perhaps the regional offices of the Public Health Service and Children's Bureau are interested. These interests may very properly be brought together by representation on a state advisory committee.

ADMINISTRATION

A group of people may advise but some one or a few individuals must do the spade work in planning and administering the program. Here we find variation from state to state. With exceptions possibly for the smaller states, the administrator of a state field training program will have his time fully occupied. Within a state department of health, this person may be a deputy state health officer or attached directly to the director's office, or be the head of a division of local health service or a training officer within that division. In several states this administrator bears the title of coördinator of training. We may define the term coördinator as a person responsible for a program involving people who are not administratively responsible to him.

While the nature of this administrative position may be determined by the particular customs or thinking of an individual state, there are certain advantages in the coördinator type of leadership. In one state at least the coördinator, a member of the division of local health service, works closely with an advisory board consisting of division and bureau chiefs of the five main professional fields concerned—medical service, environmental sanitation, public health nursing, health education, and administration. It is this board that approves field training stations and training policies and procedures. Responsibilities of each individual are clearly determined as set forth in a written document *Field Training Policies*.

The coördinator's functions are limited. He does not recommend a health education candidate for training. This is done by the chief of the bureau of health education. He does not recommend a medical candidate. This is done by the chief of the division of preventive medical service and the chief of the division of local health service.

Because of their greater numbers, the placement of public health nurse trainees is done by direct dealing between the heads of the nursing schools and the director of nursing in the local health departments approved for field training.

The coördinator does not outline the special curriculum for the different training disciplines. This is done by chiefs of the different services represented on the advisory board, and they in turn may have the assistance of their own subcommittees, including university and local health department people. By this method each service chief has responsibilities of his own, and he feels and appreciates these responsibilities.

The coördinator is the overall administrator of the field training program. At the same time he is a co-partner or operations' director for the advisory board and for the state director of health.

In the instance above cited there is one further instrument of administration. Four people on the state staff devote the major part of their energies to the training program, working jointly with the coördinator and the chiefs of their own professional fields. The four professional fields represented are public health nursing, health education, sanitary engineering (including sanitation), and laboratories. The work of this group, in the capacity of educational consultants, is largely in the field, reviewing training stations, the work of students, the program, and recommending new areas suitable for field training.

In some states, if we understand the situation correctly, the director of the

training program is more intimately identified with selecting trainees and outlining training curricula, the heads of the professional fields acting more in the capacity of consultants.

In smaller states, particularly where a state program is not feasible, there is the possibility of developing a training area for a region. In these instances, the availability of consultative service in the different professional fields is especially necessary.

THE LOCAL TRAINING STATION

We have presented briefly certain elements of a state administrative structure for field training, but the most important factor in this entire program is the local health department and the related agencies where the actual training takes place.

The local health officer is primarily concerned with administering a local health program for the benefit of the people of an area. Field training is admittedly a secondary function. The health officer's acceptance of the training responsibility is a voluntary one. In some states the local health officer of a training station or the local health officers' association is represented on a state educational advisory committee where he is close to the planning of the program. In one state there is a committee on recruitment and training made up of local health officers, and the state training officer meets with this committee.

While accepting general guidance from the state organization as to purpose and content of curricula, the local health officer and his professional staff chiefs bear the responsibility for carrying on the training program. In so doing, they must have the privilege of minor adjustment of the recommended curriculum.

The primary purpose of field training is to provide orientation and observation in the overall workings of the department and supervised field experience in the trainee's professional field, in the course of which there is opportunity for the trainee to assume individual responsibility and make his own decisions.

Realistically this experience is an exposure to operations as they *are* carried out in the department to which the trainee is assigned. This may not be the best way to carry out such operations, but it is undoubtedly the best that that department can do within the framework of its organization and within the limitations of local stage of development, local facilities, and local community customs and thinking.

The maintenance and cordial relations with local health departments is vital. While the local department is the gainer in a material way through the prestige of being an approved training station, in the stimulation of the staff that training responsibilities bring, and in having first hand opportunity to select able trainees to fill vacancies on its own staff, a training program does take extra time and thought, over and above the regular duties of the department. Adapting training to the regular work of the department must necessarily be a prerogative of the local health officer.

EVALUATION

Finally in a state program there must be some mechanism for assessing the breadth and quality of the training experience. Periodic reports to the state are needed from trainees as well as reports from the local departments on the progress of trainees. In addition, there are the judgments of state training consultants on the work of the station and the trainees. In the course of time, more objective ways of measuring progress and adequacy of training may be developed. Contributions to this development may be stimulated by having not one main training station but several stations.

Unencumbered by too many minor

restrictions and with freedom and encouragement for local departments to experiment and explore, we may look forward to a healthy and progressive development of state programs for field training.

A.S.H.A. National Defense Resolution

The American Social Hygiene Association at its annual meeting in New York on January 30, passed the following resolution pertaining to National Defense:

WHEREAS, the official policy of the Armed Services calls expressly for the repression of prostitution, for reasons both medical and moral, as essential in their program of welfare for members of the armed services; and

WHEREAS, for the same reason prostitution carries a similar threat to the welfare of civilian personnel, participating in war production or civilian defense; and

WHEREAS, the national policy clearly presupposes repression of prostitution primarily on state-wide and local levels, under state and local enactments, and by state and local officials, with federal control, under the May Act, to be invoked only where conditions make local control impossible; and

WHEREAS, the enormous augmentation of the Armed Forces, the tremendous increase of production of war material, and the institution of a far-reaching system of civilian defense, necessitated by the outbreak of war in Korea and developments occurring since, indicate clearly that increased efforts to repress prostitution, and to keep it repressed, have become indispensable, Be it

RESOLVED Therefore: That the American Social Hygiene Association calls the attention of all American law enforcement agencies and personnel to the current necessity for vice repression and urges all such agencies and personnel to endorse and further the national policy to the best of their abilities.

The Use of Child Health Conferences for Training of House Officers and Medical Students*

A Survey of 238 Health Departments in 33 States

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THERE have been many indications over the past decades that the content of medical care has been changing in the direction of more preventive work and the promotion of better health. These impressions have been confirmed by the nation-wide study of child health services and pediatric education [1] conducted by the American Academy of Pediatrics in coöperation with the Children's Bureau and the Public Health Service, F.S.A., which showed that about one-fourth of all visits to children are for health supervision. The general practitioners of the country reported that approximately one-third of all their visits to children were to well children, and pediatricians stated that nearly 60 per cent of their visits were for health supervision. It is generally agreed that this emphasis on the preventive aspects of medical care is a relatively recent development and is still on the increase.

Contrary to what one might expect, this change in the content of medical practice in the direction of more preventive work has not been accompanied by a corresponding change in the content of medical education and hospital training. These latter are still largely concerned with the ill child, and the future physician often is left to learn for himself about the many minor problems of growth and development which in the aggregate are of tremendous importance.

The study of pediatric education conducted by the American Academy of Pediatrics showed that training in the care of the well child is provided primarily in three areas: in premature or new-born nurseries, in child health conferences, and in school health programs. The nursery experience is usually well organized and valuable but is concerned only with the first days or weeks of life. School health programs are still in the developmental stage and at present make no significant contribution to training. Child health conferences remain as the single most important area currently used for this type of experience. Yet Table 1 shows that in 1946 more than one-half of all pediatric house officers failed to obtain such training. Comparable data for rotating interns are not available, but we do know that their

* Presented at a Joint Session of the American School Health Association and the Food and Nutrition, Maternal and Child Health, and Public Health Nursing Sections, and the Committee on Child Health of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., November 3, 1950.

TABLE 1

Pediatric House Officers Not Receiving Training in Care of Well Children at Time of Survey

(Data from 843 Approved Residencies)

Type of Training	*Number*	*Per cent*
Newborn Nursery (Under Pediatric Staff)	262	31
Child Health Clinics (10 or more hours per year)	492	58
School Health (10 or more hours per year)	807	96

Source: *A.J.P.H.* 40:389 (Apr.), 1950.

training in this respect is inferior to that of pediatric house officers.

The question arose as to why more use was not being made of child health conferences as a training area. The data for the Academy study were obtained from the pediatric departments of the medical schools of the country and from the pediatric services of the hospitals with approved residency training programs. However, the child health conferences of the country are operated by health agencies or by volunteer agencies working in coöperation with health departments. A proposal for obtaining information on this subject direct from health officers was discussed at a joint meeting of the representatives of the Committee on Child Health of the American Public Health Association and of the Committee for the Improvement of Child Health of the American Academy of Pediatrics. It was decided to undertake such a study under the sponsorship of the American Public Health Association.

METHODS

A questionnaire was prepared in three parts. Part 1, to be answered by all health officers, asked about the operation of their child health conferences; part 2 was for health departments with one or more child health conferences used for the training of house officers; part 3 was for health departments whose child health conferences were used as a training area for medical students. These questionnaires were sent by the American Public Health Association to each state health officer with the following request:

> Answer in terms of the well child clinics in your district directly operated by your health department. If well child clinics are operated by a full-time local health department which is responsible to your department, the questionnaire should be filled in by the local unit.

Certain shortcomings of the study are due to inadequacy of the questionnaire and emphasize the desirability of a trial run for any such nation-wide investigation. An occasional health officer failed to read the questions carefully; other deficiencies will appear as the data are presented. This report therefore is not a complete survey of the use of official well child conferences for training of medical personnel in the United States; in general, however, we believe the facts presented are valid.

Part 1: General Information about Child Health Conferences

Two hundred and thirty-eight health departments from 33 states answered Part 1. Two hundred and seventeen, or 91 per cent, of these operate child health conferences.*

The question about the use of an appointment system did not define this

* Footnote 1—We cannot give a quantitative value for the completeness of this survey. The actual number of health departments represented in the survey was much larger than is indicated by the 238 reports received; likewise the number of health departments operating well child conferences is greater than the 217 reported. For example, four states (Iowa, Rhode Island, Vermont, and Wyoming) sent in one report for the entire state. Several additional states sent reports only from those counties where training was done and did not report from health units where conferences were held but were not used for training. Maryland, for example, which has full-time health departments in each of her 23 counties and in Baltimore City, sent in only two reports, one for Baltimore City and one combined report for the 23 counties.

In addition to this undercounting in the data which are presented, there is the further difficulty of not knowing how many health departments failed to make reports. In this connection it is of interest that 1,063 counties had child health conferences in 1946 (Table 119 of supplement to reference 1). However, an unknown number of these were operated by voluntary agencies rather than by health agencies.

term adequately. It is clear from the answers that most health officers defined an appointment system as sending a card to a patient to come to the clinic on a given day; a few defined it as an appointment for a specific day and hour. In most instances it is not possible to distinguish between these two types of appointment system from the replies. One hundred and twenty-four, or 57 per cent, of the 217 health departments reported an appointment system in all conferences, 23 per cent noted an appointment system in some clinics, and the remaining health departments reported no appointment system. Four failed to answer this question.

One hundred and seventy-nine, or 83 per cent, of the replies said that the same physician sees the same patient on successive visits to clinics; most of the others noted that this situation existed in some clinics. This may be interpreted to mean that most clinics are staffed by a single physician. The answers to this and the preceding question do not provide information about the more difficult administrative problem, in clinics where several doctors are working, of arranging for the same house officer or medical student to see the same patient on successive visits.

Table 2 shows that only 28 of the 217

TABLE 2

Training in Well Child Conferences

	Number Health Departments Reporting Training in			
	*Some * Clinics*	*No Clinics*	*No Reply*	*Total*
House Staff	28	187	2	217
Medical Students	18	192	7	217

* At least one.

health departments reported the use of any of their child health conferences for training of house officers, and only 18 health departments used these conferences for training of medical students. We have already seen in Footnote 1 that our denominator of 217 health departments is a considerable understatement of the number of local health units actually comprised in this report.*

The 18 conferences used for the training of medical students were operated by the same 28 health departments that opened their conferences to house officers, except in 5 instances; which means that a total of 33 of the 217 health departments reported the use of at least one of their child health conferences for the training of medical personnel.

There were 15 health officers who said that their conferences should not be used for training purposes, and the following comments were offered: no qualified instructor, 3; too far from teaching center, 2; not sufficient material, 2; would require more staff, 1; too short a period, 1. Three answers were not clear and 3 gave no reason for their statements.

The patient load per physician hour was reported by 200 health departments and is presented in Table 3. The average

TABLE 3

Patient Load Per Physician Hour Reports from 200 Health Departments

Health Depts.	*Patients per Hour*				
	<5	*5–9*	*10–14*	*15 plus*	*Total*
No.	35	96	45	24	200
%	17	48	22	12	100

Average for all clinics: 8.4 patients/hour.

patient load per physician hour was 8.4, or about 7 minutes per patient. Because of the method of tabulation these are minimum patient loads; for example, one health department reported 28 patients per clinic session of 1 to 2 hours.

* It would be pertinent to know how many child health conferences were reasonably located geographically for the training of house officers. There were 158 hospitals approved for pediatric residency in 1946 (reference 1, page 214). The information to be obtained from locating these hospitals in relation to the 217 health departments which operated well child clinics did not seem to warrant the effort.

This was tabulated as 14 patients per physician hour. Several health officers volunteered the comment that the patient load in their clinics was too large and a few said that steps were being taken to improve the situation.

Table 4 gives data regarding payment

TABLE 4

Payment of Physicians in Child Health Conference

Payment Per Hour	No. Health Departments Reporting Payment to: General Practitioner	Pediatrician
$ 2–$ 4	8	0
$ 5–$ 6	18	0
$ 7–$ 9	4	8
$10–$15	2	5
Total	32	13
Av. Payment/Hour	$5.37	$8.85

of physicians for work in child health clinics. The small number of answers to this question is probably due to the fact that it was included in part 2 of the schedule along with a query of payment of house staff and therefore was not completed by most of those who were concerned only with part 1. The average stipend is low, especially when it is remembered that this is payment only for time in clinic and does not include travel time. The average payment for a board-certified pediatrician is over 50 per cent higher than the average stipend for a general practitioner. Most of the 13 health departments employing board-certified pediatricians were in cities where there is a medical school. It is of interest that only 4 reports indicated the use of two pay scales, one for general practitioners and one for pediatricians.

Part 2: Child Health Conferences Used for Training House Officers of Hospital Pediatric Services

The 28 health departments reporting the use of their child health conferences for training of house officers were located in 18 states. In the majority of instances these 28 health departments had jurisdiction over an area in which was located a medical school with associated teaching hospital.

Much of this part of the questionnaire asked for expressions of opinion rather than statements of fact. Twenty-seven, or 96 per cent, expressed the view that such training was worth while in teaching well child supervision, but only 54 per cent believed that such experience provided adequate training.

Table 5 gives the health officers' esti-

TABLE 5

Effect on Service to Patients When Child Health Conferences Are Used for Training of House Staff

Effect	Opinions of Health Officers: Amount of Service	Quality of Service
Increases	17	15
Lessens	5	3
No Effect	5	7
No Answer	1	3
Total Replies	28	28

mate on the effect of service to the patient of using these clinics for the training of house staff. It is clear that the majority believed that the general result to the patient is beneficial. Twenty-four, or 86 per cent of those reporting, said that the use of these conferences for training did not interfere with clinic administration; 4 said that it did interfere. Eighteen, or 64 per cent, gave the view that the use of clinics for training acted to improve the quality of staff work; 4 held the contrary view, and the remainder did not express an opinion or said that the answer varied with the clinic.

The question, "What is the nature of the training?" resulted in multiple answers as follows: observation, 11; trainee works alone and unsupervised, 13; consultation on every patient, 7; consultation on selected patients, 14. The other replies indicated that work in the clinic was supplemented by an

organized teaching program which, in order of frequency, comprised post-clinic conferences, lectures and seminars.

The number of hours in child health conferences per house officer per year was queried. Six health departments reported less than 20 hours per trainee per year; 2 reported 20 to 59 hours per trainee, and 9 reported more than 60 hours. Eleven failed to answer the question.

Seven replies noted that the work of the trainee was concentrated in one month; in 6 instances his work was concentrated in 2 months; in 5 instances it was spread over a 3–5 month period, and 7 replies said that it was over a 6–12 months period. The others did not answer.

"What types of trainee are assigned to child health clinics?" allowed multiple answers which were given as follows: general interns, 8; pediatric interns, 9; assistant pediatric resident, 18; pediatric resident, 16; and psychiatric interns or residents, 2.

It is not uncommon for a house officer assigned to a child health clinic which is operated by a teaching hospital to have concurrent responsibility for sick patients which frequently interferes with his work at the conference. Twenty-five of the 28 health departments indicated that this was not a problem with them; one said that hospital responsibilities did interfere with conference work and 2 did not reply. This lack of conflicting duties may be due to the fact that geographic distance between the hospital and child health conference of the health department precludes such dual responsibility.

Twenty replies stated that it would be preferable to have the work of the trainee spread over a period of from 6 months to 1 year concurrently with hospital duties. Five said they would prefer that full time be devoted to child health clinic work for from 1 to 2 months. Two made other suggestions and one did not answer.

Eighteen health departments did not pay house officers; 10 did. Rates of payment ranged from $5.00 to $7.50 per hour in 8 clinics. Two other clinics paid $2.00 and $2.50 per hour respectively. Stipends were paid by the health departments in all instances except one where a voluntary agency paid the costs.

Part 3: Use of Child Health Conferences for Training of Medical Students

Eighteen health departments from 12 states reported that some of their child health conferences were utilized for teaching of medical students. Such training was required in 15 instances, optional in 3. It was required most frequently in the 4th year of medical school; less often in the 3rd year, and least often (1 school) for 2nd year students.

Seventeen replies, 94 per cent, gave the view that such experience was worth while to the trainee, and the same per cent expressed the opinion that neither quantity nor quality of service to patient was decreased. On the contrary, most of the replies indicated that the quality of service was increased, and that this was the result of improved staff work. Only 4 said that training of medical students interfered with clinic administration; the remainder said that it did not.

The question regarding the nature of the training again drew multiple answers as follows: observation, 10; worked alone, but another physician in clinic, 1; supervised work with consultation on each patient, 12; with consultation on selected patients, 2; and by post-clinic conferences, 5. Over half (11) of the replies told of an organized teaching program of post-clinic conferences, lectures, and seminars in that order of frequency.

The time usually allotted to child health clinic work for each medical student who obtains this training was stated to vary from 2 to 20 hours during

the 4 year course except for one state, which reported 54 hours required in the 4th year. This time was concentrated in one month in 7 instances; in 2 months in 8 instances; and in more than 2 months in the remainder.

COMMENT AND SUMMARY

It is clear that the content of pediatric training in the care of the well child for either pediatricians or general practitioners has not kept pace with the increasing emphasis on health supervision. Child health conferences constitute the most important area currently available for this type of training, yet relatively few conferences are used for this purpose. This failure to utilize the educational potential of these conferences contrasts with the fact that 93 per cent of the health officers expressed the view that child health conferences should be used as training areas.

House officers have in general been notoriously lacking in enthusiasm for their work in child health conferences as compared with their work in hospital wards. This attitude is not always due to lack of appreciation of the need for experience in health supervision. Too often it is due to the frustrating experiences which most house officers have had in child health clinics. The great defects are lack of adequate time to see each patient, due to the heavy patient load per doctor hour, the lack of adequate teaching staff, and, most important, the lack of continuity in the doctor-patient relationship. Such continuity is essential because the type of problems presented by well children frequently require weeks or months for their understanding and solution.

This lack of continuity comes about as a result of two conditions. First, very few teaching conferences have an appointment system whereby the student house officer or medical student sees the same patient on successive visits; second, the child health conference by definition divides responsibility for the care of the child, depending upon whether he is well or sick. The former cause of discontinuous care can be remedied; the latter cannot, at least not within the framework of the child health conference.

Hospitals, health departments, and departments of pediatrics of medical schools are all concerned with the solution of these problems. Hospitals must establish schedules of work for their house staff who are assigned to child health conferences so that they do not have concurrent responsibility for other hospital duties. The method of assigning each house officer to child health conference work for a solid block of time such as a month or more may be objected to on the ground that continuous observation of children over a much longer period is desirable and also because it is difficult to provide a full schedule of child health work for such a period of time. A more successful method is to assign house staff members to child health work during regularly scheduled hours such as one morning a week for several months, during which time the individual should be free from all other hospital duties.

Pediatric departments of medical schools should consider the allocation of time for work with well children in the already crowded curriculum of medical students. Here again the method of assigning the student to child health conference work for certain hours each week over a period of months has the advantage of continuity already referred to.

Health departments need to consider methods of improving child health conferences to the point where these offer a favorable setting for training. More space will be required. Each house officer will need a place to interview and examine. Second, an appointment system must be set up so that the same house officer sees the same

patient over a period of months. Third, the patient load must be regulated. The experienced physician should average 10 to 15 minutes per patient if he is to do effective work, particularly in the field of anticipatory guidance. The physician in training should allow nearly twice this time, to see the patient and to check his work with the supervising physician. Fourth, there must be a program of seminars, case presentation, and other formal instruction. . . . This will require more paid professional staff of teaching caliber.

The staff work necessary for an organized training program of this sort cannot be added to the usual work load of the child health conference staff. Time must be provided, either by reduced case load on the days on which students attend or by added supervisory and teaching personnel. Recognition needs to be given to the special qualifications required of physicians who teach growth and development and the maturation and psychological problems of well children in comparison with those who are concerned with the more dramatic but perhaps no more difficult subjects of disease and treatment.

It will be clear to all three groups, hospitals, health departments, and pediatric departments, that such a teaching program in a child health conference will require more time of teaching personnel, will cost more, and will add to the problems of administration. This is not the place to discuss the apportionment of these requirements. However, it is clear that coöperative action by these 3 groups is necessary and will provide ample rewards for effort expended.

ACKNOWLEDGMENT is made to Mrs. Elizabeth Jones for assistance in tabulating the data.

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Joint Housing of Hospitals, Health Departments, and Laboratories

A Survey of Joint Housing *

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IN order to cope effectively with our most important health problems—heart disease, cancer, diabetes, mental illness, and other chronic diseases and impairments—public health is developing a close association and partnership with clinical medicine. One expression of this trend is the growing interest in bringing hospitals and health departments together physically as a means of facilitating the functional coördination of preventive and curative services.[1]

The question of joint housing has particular significance at this time because of the nation-wide program of hospital and health center construction. To date, over 250 health centers have been approved for construction and about 50 of these are being planned in connection with hospital facilities. The policies adopted now are being realized in brick and concrete structures which will stand for many years as testimony to our vision or shortsightedness, our good judgment or lack of it.

In 1948, because of the need for factual data to serve as a guide to planning, the Subcommittee on Medical Care of the American Public Health Association instructed its staff to undertake a survey of joint housing. We were interested in learning the extent and methods of coördination of services, the advantages and disadvantages of joint housing, and the general conclusions which health officers and hospital directors had reached as a result of their practical experience.

Field visits were made in 1948 and 1949 to practically all local units in the United States in which the health department and the hospital were jointly housed—that is, either combined in one building or situated adjacent to each other. Interviews were held with the health officer and members of his staff, as well as the hospital director in most instances and medical staff members in some.†

In all, 24 local health units were studied, including Birmingham-Jefferson County, Alabama; Kern, Monterey, Sonoma, and Stanislaus Counties, California; Denver, Colorado; Floyd, Macon-Bibb, and Ware Counties, Georgia; Cook County, Illinois; Louisville-Jefferson County, Kentucky; Charles, Washington, and Wicomico Counties, Maryland; Isabella County and Flint, Michigan; St. Louis County, Missouri; New York City; Columbus and Onslow Counties, North Carolina; Okmulgee County, Oklahoma; Arlington County,

* Presented at a Joint Session of the Health Officers, Laboratory, and Medical Care Sections of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., October 31, 1950.

† An attempt was also made to obtain information concerning local health units which had abandoned joint housing, but this was given up because very few such instances were discovered and the difficulties in obtaining accurate data were magnified by the passage of time and dispersion of personnel.

Virginia; and Bremerton-Kitsap and Kittitas Counties, Washington.

Several of these areas are examples not only of joint housing but also of combined administration; thus in Denver and Louisville, the Health Officer is also responsible for administration of the hospital, while in Monterey * and Sonoma Counties the health officer is subordinate to the hospital director. Some of the relationships developed in these jurisdictions must therefore be considered in terms of this special factor.

New York City was included in the study because of our interest in the combination of district health departments with university medical centers; visits were made to several of these to evaluate their experience with particular reference to the training of medical students in public health and preventive medicine.

Six of the health units studied cover populations of less than 50,000; another 6, from 50,000 to 100,000 population; and the remaining 12 represent larger units. The combination is with public hospitals in 16 instances and with voluntary hospitals in 8; it should be noted, however, that in a number of the smaller communities studied the public hospital is not essentially different from a voluntary institution in that it admits all economic groups in the population.

The physical arrangements are varied; in 13 of the 24 units, the health department and the hospital are housed in separate but adjacent buildings. In the remaining 11, the health department occupies space in the hospital building, either part or all of a hospital wing or, in three instances, of the basement. Specifications for the health department were included in the original architectural plans in only 4 of these 11 hospitals.

The payment of rent or service charges by the health department occurs in 5 of the combined units as well as 2 of the adjacent units where the health department building is owned by the hospital. Payment is made to 3 public and 4 voluntary hospitals; in the majority of instances the amount is quite small.

COÖRDINATION OF SERVICES

Some form of coördinated activity was found in all of the units studied, varying from a bare minimum in two or three instances to a multitude of cooperative relationships in a number of others. In several the health officer is consulted by the hospital administrative staff for assistance with a wide variety of problems. This is true in Charles County, Maryland, where the Health Officer has been elected chief of staff of the hospital; in Wicomico County, Maryland, where the Health Officer is a member of the hospital staff's executive committee; and in Cook County, Illinois, where on the morning of my visit for example, a conference of hospital and health department personnel was being held to explore the problem of securing an adequate supply of breast milk for Cook County Hospital's premature center.

Members of the hospital staff present lectures to the public health nurses in several of the units, while joint staff conferences of hospital and public health nurses are occasionally held on problems of mutual interest. In Denver, where the health department administers the hospital, joint meetings of nursing personnel are held monthly; at one such meeting, for example, demonstrations of the infant bath were given by a hospital nurse and a public health nurse, and uniform procedures were agreed upon so that instructions given to the mother in the hospital or at home would not conflict.

In a number of areas—such as Denver, Flint, and Sonoma, Cook, Washington, and Wicomico Counties—the health

* Combined administration and housing in Monterey County have since been discontinued.

department has teaching responsibilities in the nursing school. That this is not merely a courtesy to the hospital is indicated by the experience in Washington County where the course in public health resulted in the acquisition by the health department of 3 new public health nurses from the graduating class, an unprecedented event.

The health department staff in Cook County influenced the director of nurses in the hospital outpatient department to take the very significant step of employing 6 public health nurses for patient teaching, including group classes for prenatal and diabetic patients. In addition, all nurses in the outpatient department were provided inservice training in public health consisting of field visits in the county over a period of several weeks.

Public health nurses in Sonoma and Cook Counties are utilized for the follow-up of various categories of discharged hospital patients, not merely those presenting obstetrical or communicable disease problems. Close cooperation of the public health nursing staff and the hospital's medical social workers—including exchange of information as well as advice on medical social problems—was noted in Louisville and Denver, as well as in Floyd, Monterey, and Sonoma Counties.

Internes and residents are used in one or more health department clinics in half of the 16 hospitals which maintain a house staff. In the areas where the hospitals have medical school affiliations—Birmingham, Cook County, Denver, and Louisville—the health officer and members of his staff have considerable responsibility for the teaching of public health and preventive medicine to medical students. The New York City arrangement, through which 5 of the district health centers are closely tied to their respective university medical centers, has contributed a great deal toward strengthening the teaching of public health to medical students. These health centers house the university department of preventive medicine as well as the district health department; the district health officer and members of his staff hold teaching appointments in the medical school; and active teaching programs, including a clinical clerkship in some instances, are carried on in the centers.

SPECIFIC PROGRAMS

In half of the institutions studied the health officer is consulted regularly for the diagnosis of communicable disease. The Kern County Health Officer is also chief of the hospital's communicable disease service, while the Health Officer and Assistant Health Officer of Cook County are attending physicians at the Contagious Hospital and, because of their proximity and easy availability, are often requested by the resident staff to provide consultation on difficult diagnostic problems. In Denver, where the health department administers the hospital, the directors of the divisions of communicable disease, tuberculosis, and venereal disease control are in charge of the corresponding inpatient and outpatient clinical services, an arrangement which permits a high degree of coordination of preventive and curative services and maximum continuity of patient care.

Various forms of coöperative activity exist in the control of venereal diseases. In several counties the health officer has been instrumental in having the hospital take routine serological tests of patients, while in other areas he is responsible for the clinical management of hospital patients with venereal disease. In Birmingham, Louisville, and Macon-Bibb County, the health departments' venereal disease clinics are situated in the hospital outpatient department, while the hospital in Washington County has coöperated effectively by providing treatment in its emergency room for

patients requiring injections during the weekend when the health department is closed.

The hospital chest clinics in Kern, Monterey, and Sonoma Counties are staffed by public health nurses, either entirely or in coöperation with the hospital nursing staff. The director of the Sonoma County tuberculosis unit is also the Assistant Health Officer and director of tuberculosis control for the health department. In several areas the health officer has succeeded in convincing the hospital to take chest x-rays of all admissions, while the Floyd County Health Department x-rayed the entire hospital staff with the discovery of several cases of active tuberculosis. Arrangements whereby the hospital x-ray service is used to take all chest films for the health department were found to be operating successfully in Columbus, Isabella, and Kittitas Counties, and Flint, Mich. In two other instances, however, this type of arrangement had to be abandoned because of overcharging by the hospital.

In the four areas where there is an administrative as well as a geographic combination of the health department and hospital—Denver, Louisville, and Monterey and Sonoma Counties—a single laboratory serves both. This is also the case in Kern County in which the hospital and health department had been jointly administered at one time. In Kern, Monterey, and Sonoma Counties the health department pays the salaries of bacteriologists or public health technicians who are administratively responsible to the hospital pathologist. The health department also pays for bacteriological equipment and supplies in Kern and Monterey Counties. It is worth noting that in all of these instances of combined laboratories, there has been no tendency to neglect public health laboratory tests because of the pressure of emergency hospital work. In one case, however, it took a good deal of persuasion by the health officer to convince the hospital pathologist that patients should not be charged for diagnostic public health laboratory examinations.

In Bremerton-Kitsap County a joint laboratory was organized at the outset with 3 technicians who were to spend two-thirds of their time on hospital and a third on public health work. This proved unsatisfactory, for there was a tendency to drop the public health tests whenever there was a large volume of hospital work. The arrangement was therefore changed so that now there are 1 public health and 2 hospital technicians; the former has remained under the administrative direction of the health department in contrast to the other instances mentioned.

In Charles County the branch state health department laboratory is also located in the hospital building, serving both the hospital and the health department. The hospital laboratory and x-ray services in St. Louis County perform all necessary examinations for the health department, which is charged that fraction of the cost which the number of health department examinations bears to the total. On the other hand, the health departments in Washington and Wicomico Counties perform bacteriological tests without charge for their respective hospitals, since the latter do not have the requisite technical personnel.

Maternal and child health represents a fertile field for coördination of services. One of the Sonoma County public health nurses acts as coördinator for maternal and child health and visits all maternity patients on the ward—she provides the mother with health instruction and educational material, makes the appointment for the first well child conference visit, asks whether the mother wishes a home demonstration of the infant bath, and so forth; the necessary information is then transmitted to the nurse in the field. The public health nurses in Onslow County visit their

clinic patients in the maternity wards, and this procedure is also carried out in Bremerton-Kitsap County for the patients of physicians requesting this service.

The problem of making data from health department prenatal clinics available to the hospital has been handled in various ways. In St. Louis County there is a movable file for maternity clinic and delivery records which is kept in the emergency room and rolled in for the clinics. If patients are delivered at night the clinic record is at hand, and notification of the delivery is made the next morning to the clinic. Patients seen in health department prenatal clinics in Louisville have the significant data duplicated on charts in the hospital, while in Macon-Bibb County a prenatal referral form is filled out and sent to the hospital a few days before the expected date of confinement; if the patient enters the hospital before this is done, the hospital requests the form by telephone. Once a week the forms are returned with data filled in concerning the delivery and postpartum course.

Public health and hospital nurses work together in the hospital maternity clinics in Kern County, and hospital residents are used in the health department maternity clinics in St. Louis and Sonoma Counties. Seven of the health departments have developed programs for prematures, including in two instances—Birmingham and Wicomico County — arrangements for hospital nurses to take special courses in premature care.

In Charles County the Health Officer was instrumental in having the medical staff review maternal and infant deaths; he also brought in the state pediatric and obstetric consultants to recommend improvements in the hospital nursery which were promptly acted upon. The Cook County Health Department staff is frequently consulted by the hospital on such problems as the organization of well baby clinics, teaching of mothers' classes, review of the prenatal program, and development of plans for teaching mothers the care of premature infants leaving the hospital.

Because of their proximity, the Cook County Health Department's orthopedic public health nurse is able to consult at least once a week with the chief physical therapist at the hospital concerning home follow-up of discharged patients; similarly, close relations exist between the Health Officer and the chief of the hospital's dental clinic for children located on the ground floor of the health department building.

Other examples may be cited of coördinated activity. The blood bank in Isabella County and the cardiac center in Kern County are coöperative projects. The cancer prevention-detection clinic in the Kips Bay-Yorkville Center in New York City is directed by a member of the Cornell University Department of Preventive Medicine and staffed by physicians from the New York and Memorial Hospitals, while the College of Physicians and Surgeons has loaned personnel to the Washington Heights health center for their nutrition laboratory.

Public health nutritionists in both Bremerton and Sonoma County have worked closely with hospital dietitians in developing special diets for clinic patients. In Bremerton, Flint, and Kern and Floyd Counties, there is very close coöperation of the hospital record clerks and the health department's statistical personnel with excellent results in terms of promptness and accuracy of reporting. While the health departments in Flint and Washington County make use of the hospital auditorium, the situation is reversed in Arlington, Ware, and Wicomico Counties where the health department auditorium is used for meetings of the medical staff, the women's auxiliary and so forth.

Although many of the coöperative

relationships mentioned can be achieved whether or not the hospital and health department are in close proximity, there is little doubt that combined or adjacent housing greatly facilitates their development. On the other hand, such coordination does not come about automatically but requires a great deal of conscious planning for improved service. It is clear that among the most important factors in achieving optimum coördination of preventive and curative services are the interest, initiative, and ingenuity of the health officer and hospital director.

ADVANTAGES AND DISADVANTAGES

The greatest single advantage of joint housing—noted by a majority of health officers interviewed—is the opportunity it provides for close contact with practising physicians and the hospital staff. The following statements by local health officers are illustrative:

"It gives the health department a much more active part in community medical life than would be the case if we were located elsewhere."

"The primary advantage is the constant contact with the medical profession and the hospital management, making them familiar with public health."

"Having left the political atmosphere of a city hall we feel that associations with the medical school and hospital people are far more pleasant, much more stimulating, and lead directly to discussions of common problems and an effort to find methods for their solution. We have had the opportunity of returning to a new city hall building but instead have developed our own plans for a public health building in the medical center. Between inclusion in a professional as against a political environment there can be only one possible choice. The change has been most wholesome and stimulating to the entire staff."

Numerous other advantages for the health department were cited, including greater prestige through association with a medical center, easier admission of patients requiring hospital care, greater contact with clinical medicine, better opportunities to promote preventive medical procedures, and the use of various hospital facilities with resultant economies as well as improved service.

The hospital gains prestige because of its participation in a broad community health and medical center, and public interest in the hospital is increased since more people visit the center for preventive services. In addition, the facilities and services of the health department are easily available for use by the hospital staff. The combination of health department and hospital in a single location is an important convenience for both patients and physicians, making it possible to attend both hospital and health department in a single visit. The ease of communication permits better referral of patients, while the development of coördinated activities results in greater continuity of care.

The major disadvantage of joint housing was found to be confined to the combined units in which the health department is housed in the hospital building. In 7 of the 11 areas with this arrangement, the pressure for more space for the hospital had either resulted in a reduction of the space allotted for the health department or in limitations on its physical expansion. In one of the combined units the serious financial condition of the hospital resulted in an increase in rent and a decrease in services as well as space provided for the health department; the health officer believed that this might have been avoided had a definite contract been made in the beginning. On the basis of such experiences, several of the health officers and hospital directors concerned expressed the opinion that it would be preferable to house the health department in a separate building on the hospital grounds.

Inaccessibility of the hospital was considered to be a problem in a few

instances; in one of these the hospital is situated in the well-to-do section of the county while the health department draws most of its clientele from other sections with inadequate bus service to the hospital. In several areas, usually those in which the health department is located in the hospital building, a certain amount of confusion may occur, with health department patients entering the hospital side or vice versa. The fear was expressed by two health officers that their proximity to a county hospital limiting its services to the needy might result in the health department being likewise considered an indigent service, while a similar number thought there was danger that the health department might suffer some loss of identity.

It is significant however that the great majority of the health officers considered that the advantages of joint housing outweigh the disadvantages, while only 3 of the 24 health officers expressed opposition to joint housing on the basis of their experience. Practically all of the hospital directors interviewed likewise expressed approval of joint housing. There is little doubt on the basis of this survey that the location of hospitals and health departments in close proximity is a valuable means of facilitating the coördination of preventive and curative medicine in the interest of better health service for the individual and the community.

REFERENCE

1. American Hospital Association and American Public Health Association. Coördination of Hospitals and Health Departments. *A.J.P.H.* 38:700-708 (May), 1948.

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Marriage and Divorce Statistics

The National Office of Vital Statistics of the Public Health Service has picked up again a project interrupted by World War II—the analysis of marriage and divorce statistics. It has issued a new series of special reports on marriage and divorce. There is as yet not a country-wide marriage and divorce registration area as there are birth and death registration areas. It has been possible heretofore to secure figures, not always in comparable form, only on total marriages and divorces in the separate states.

But in 1948 the Office of Vital Statistics, after inquiry as to the most feasible methods of obtaining such information, sent a series of forms to each state office of vital statistics for compiling and forwarding data on marriages and divorces. Data were returned by 26 states of which 11 returned all forms.

A series of three special reports has been issued summarizing this material. *Vital Statistics Special Report* Vol. 35, No. 3, reports the number of 1948 marriages by county in each state. No. 9, *Marriage Statistics, Specified States,* analyzes marriage in 26 states by ages of bride and groom, as well as more detailed data for a lesser number of states. No. 12, *Divorce and Annulment Statistics Specified States,* presents data, particularly on causes, for 14 states.

For background information and the history of earlier studies in this field, the reader is referred to "Needs and Future Prospects of Integrating Marriage and Divorce Data With Other Vital Statistics" by Samuel Clayton Newman, Ph.D., of the National Office of Vital Statistics (*A.J.P.H.* 39:9, Sept. 1949).

Joint Housing of Hospitals, Health Departments, and Laboratories

The Hospital Administrator's Viewpoint *

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THIS subject is not a new subject for discussion and study in the hospital field. The American Hospital Association has had, for many years, a Committee on Public Health Relations and, from time to time, pamphlets have been published by the American Hospital Association giving recommendations to hospitals from this committee as to the value to hospitals of close collaboration and working relationships with local departments of public health and laboratories. I have on my desk today copies of reports of committees in 1931, 1934, and 1936, all of them stressing the importance to hospitals of this close working arrangement. These early reports emphasized the advantage of close coordination of many phases of hospital and public health work. These reports usually mention:

1. Joint use of laboratory service by hospitals and health departments or the close coordination and coöperation of laboratory services to be used by both groups.
2. The use by both hospitals and public health departments of medical social workers.
3. The use by both hospitals and public health departments of joint housing and the joint use of each others personnel in the operation of clinics.
4. The close coöperation of both hospitals and health departments in control of communicable diseases by the close coöperation of the personnel of both groups in reporting and checking such cases in the hospitals.

These reports stressed to the hospitals the benefit which this close coöperative effort would have, not only to the hospitals, but also to the community.

With several of these reports having been printed and distributed to the hospital field, it became evident that, in many parts of the United States, hospitals were becoming cognizant of their responsibility to the general public health. Thus, the usual understanding of the functions of a hospital has included a public health function for a number of years.

The functions of the hospital are officially said to be:

1. To give adequate medical and hospital care to its patients.
2. To teach medical, professional, and technical personnel.
3. To take part in research programs in the medical and hospital fields.
4. To foster and promote the public health and preventive medicine programs of the community.

Reports come to the American Hospital Association from many hospitals that they would like to enter this cooperative effort, but the health departments, in many places, do not seem interested in the matter. A result of this was the establishment, in 1948, of a Joint Committee with the American Public Health Association to study these matters and to make a joint statement

* Presented at a Joint Session of the Health Officers, Laboratory, and Medical Care Sections of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., October 31, 1950.

of policy. This committee met and, in 1948, drew up a joint statement of policy approved by the Boards of Trustees of both the American Hospital Association and the American Public Health Association, suggesting that both groups work closely together for better community health.

It becomes evident, particularly in smaller communities, that, when closer relationships are accomplished, many advantages will accrue to both groups by the joint housing of these facilities. Many of the plans under the Hill-Burton Act for community hospitals and health centers now emphasize the housing of both hospitals and health departments in one building. I would like to discuss a few of the advantages of joint housing from the viewpoint of the hospital administrator.

In the joint operation of a laboratory, the hospital would benefit in several ways. If the institution is a small one, it will allow for more adequate personnel because of the greater volume of work which would be done in the laboratory, while, if each had its own laboratory, it would be more costly for the community and personnel time would be wasted. In one community with which I am acquainted, the health department and the hospital each operated its own laboratory. In both laboratories, much of the same work was done. Each did basic diagnostic laboratory work, such as blood counts, urinalyses, etc., and each did Kahn tests. In this latter field, as one laboratory did not have a large number, they were unable to do them more than twice a week. The hospital laboratory did a number of diagnostic tests which were not customarily done in the health department, and the health department did milk and sanitary examinations not usually done in the hospital laboratory. The laboratory technician of the health department laboratory resigned suddenly, due to illness, which left no one in this laboratory. The hospital laboratory had to take over the service, and it was found that it was able to do all of the work satisfactorily to the health department in the single laboratory and without additional personnel. There were now enough Kahns to be done so that it made it a much more economical procedure than it was when each laboratory was doing them. The hospital had the advantage of obtaining reports, which it formerly had to obtain from the public health laboratory, much more rapidly than they had been received before. The general result of the joint housing and operation of the laboratories was a success for both groups.

Many hospitals have medical social work departments, and yet these specially trained women can be of great assistance to the public health nurse in her public health work if they work in close coördination and assist each other. It might seem to be of greater advantage to the public health departments to have available these specially trained professional people, but the hospital finds that the closer association of the medical social worker with the public health field makes her more cognizant of the preventive aspects of medicine and makes her work much better in connection with the patients in the hospital because she does coördinate the public health principles in her work.

Most public health departments operate clinics of a preventive nature and many hospitals also operate clinics. Analysis of these clinics in a community often shows duplication of effort without any particular advantage to the community. In Detroit, we operated a venereal disease clinic in the Harper Hospital Out Patient Department, and, right across the street, in a building owned by Harper Hospital but leased to the Detroit Department of Health, another venereal disease clinic was operated by the Department of Health. A study of this duplication of service

showed that it was not necessary to operate both clinics; so Harper's clinic was discontinued and the Department of Health took care of the needs of both the hospital and the health department. In a place where joint housing is accomplished, the clinics should be housed together and not duplicated, and the personnel of the clinics should be from both the health department and the hospital staff. This has several advantages. From the standpoint of the hospital, it is a saving in the use of personnel, as the health department personnel will be responsible for those clinics which are in the public health and preventive medicine field, such as the venereal disease clinic, maternal and child health clinics, well baby conferences, tuberculosis clinics, etc. The hospital personnel may be used to supplement the public health personnel in working in these clinics when it is necessary or as a part of the teaching program of the hospital. This is a greatly needed aid in the hospital program for better teaching of the residents, internes, and nurses. The close association of these groups of students with public health people will bring a much better understanding to these young doctors and nurses of their public health responsibilities and make for a better community health service. These coördinations, although they can be accomplished without joint housing, are of course much more effective with joint housing.

As a hospital administrator, I have had difficulty for years in interesting the doctors and nurses of our hospitals in taking the responsibility necessary for proper reporting of communicable diseases. When the institutions are separate, the reporting of these diseases seems to be just another nuisance. The employee of the hospital usually misses the importance to the community of communicable disease control, and time and again these cases are not reported promptly. This may result in the spread of diseases both in and out of the hospital. In an institution with joint housing, my experience shows that the employees of the hospital become health-minded because they are constantly associating with the public health personnel who are housed in the same building. They make the necessary reports because they know of their importance, and they are cognizant of the protection the public health department provides both for themselves and for the community by early knowledge of persons with communicable disease. This is of considerable advantage to the hospital in protecting its patients and employees from the spread of communicable diseases.

My experience also has shown me the advantage to hospital patients of the close association of joint housing in our maternal and child health services. In the joint department which was under my direction in California, before we had joint housing, there was little or no communication between the public health nursing staff in maternal and child health and the patients in our hospital. No one in the hospital seemed to think there was any advantage in having this close association, and neither did the public health nurses see any advantage to them. After the departments were housed in one building, I suggested that the public health nurses start their maternal and child health education of the mother first by working in the prenatal clinics, as they had done in the past, and, second, by seeing the mother in the hospital the day before she was to be discharged to give her the lesson in the care of the child in the home before she arrived there. The first reaction of the public health nurses was that this would just be a nuisance and would not accomplish anything, but, after they did try this, they found they could develop a small maternal education class in the hospital and give the mothers much of the pre-

liminary teaching which previously had been done in the home. Consequently, the mothers had all of this information before they arrived in their homes with their babies. This saves the time of the public health people. It was of advantage to the patients, as they went home feeling much more secure in their ability to manage the care of their babies at home. I am sure this department would not consider giving up this joint arrangement.

In Detroit, we have not been able to develop this service, possibly because we do not have joint housing, and the health department's public health nurses do not see patients in the hospital. We have some connection with the Visiting Nurse Association, but it does not have the advantages which we enjoyed in the joint service to which I was formerly accustomed.

Joint housing would greatly facilitate public health education for the hospital. The hospital's second function, as stated above, is to teach medical, professional, and technical personnel and, when this is done without the close coördination of public health people, it is usually done without adequate emphasis and understanding of public health and preventive medicine by the students. When public health and curative medicine are separated and the personnel of the two groups do not see each other, the lack of association fosters lack of interest. In my joint department, we had excellent and continuous association with public health by our student nurses from the very first day in which they came to the institution. We found that, as they developed in their careers in nursing, they became very much better nurses because they were public health minded nurses. This was an advantage to the hospital as such a nurse is a better nurse. We found it also to be of advantage to the health department because a greater percentage of these nurses were interested in taking up advanced work as public health nurses upon the completion of their basic courses. Every nurse, in her experience in the hospital, also had experience in many phases of public health department work.

The same values were found in the education of our residents, and also our internes. The resident staff was closely associated with the health officer and usually would assist the health officers in public health work, particularly in vaccination and immunization programs, as well as in the public health clinics. I think these doctors were better prepared, from the community viewpoint, because of this association which would not have taken place if the two departments were housed separately.

In Detroit, we have little or no communication between the education of our residents, internes, and nurses, and the official health department. The health department does assist with lectures as requested and the student nurses, residents, and internes are sent to the city hospital for work in communicable diseases and tuberculosis, but that is about all the association we have. I think it is probably due to the fact that the two departments are not housed together and they have never been interested in developing this closer relationship to the extent of overcoming the handicaps of separate housing.

The hospital can be of importance to the health department in closer coördination of vital statistics. The collection of vital statistics is one of the duties of the health department. These vital statistics, if they are to be maximum value, must be as correct as is possible. When the hospital and the health department were housed together, as Health Officer and Registrar of Vital Statistics, I received the death certificates coming from my hospital as signed by my physicians, and, as Administrator of the hospital, I would sit in the Record Committee meeting and hear the same cases discussed and see the final diag-

nosis of the cases placed upon the hospital chart. I noted that, in many instances, the diagnosis in the two places was quite different. This disturbed me, so I set up a study of the matter and found that, when the doctors were away from the hospital and from their records, discrepancies occurred in the diagnoses. As the undertakers had no interest in the accumulation of statistics, they were quite satisfied with anything which the doctor remembered about the case. We set up a system of checking between the hospital and the health department by having all death certificates signed in the hospital in duplicate, one being left in the chart and the other forwarded to the health department. As soon as the final diagnosis was available on the hospital chart, which sometimes was delayed a day or two due to the obtaining of autopsy findings and final pathological reports, the Record Librarian would check the death certificate and the cause of death on the hospital chart. If it was found they differed materially, she called a conference with the physician or physicians involved to ascertain which diagnosis was the correct one. Almost invariably, the correct diagnosis was the diagnosis on the hospital chart. In this case, I, as Health Officer, would have the hospital initiate a corrected death certificate giving the proper primary and secondary causes of death, and send it in as a correction. At first, the State Department of Health objected to so many corrections, but, after a fairly reasonable time, the doctors became much more careful about what they wrote on the death certificate and the number of corrections necessary was reduced materially.

After I came to Harper Hospital in Detroit, I initiated a similar study and found that 40 per cent of the death certificates issued on deaths in the hospital over a 2 year period did not agree with the diagnoses on the hospital charts. As these departments were not housed together, no one had made such a check, and we are hoping to develop something between the hospitals and the health department which will help to correct the situation and insure the accuracy of death certificates coming from the hospital.

Good vital statistics and the good records which are present in hospital charts are of great value both to the health department and to the hospital.

In summary, I wish to state that, from my viewpoint as a hospital administrator, the close association of hospitals and health departments is essential and should be developed as rapidly as possible. The efficiency is greatly increased by joint housing of both departments in the same place whenever it is possible. Although this has been started in the rural areas, its advantages in the larger cities should also be studied.

Joint Housing of Hospitals, Health Departments, and Laboratories

The Health Officer's Viewpoint *

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SINCE 1940 the Health Department of Charles County, Maryland, has occupied quarters on the first floor of the Physicians' Memorial Hospital in La Plata, the county seat. This hospital is the only hospital located in a rural county of Southern Maryland, with a population slightly over 23,000. Also located in the hospital is a branch laboratory of the State Health Department. This laboratory serves both the hospital and Health Department.

The Physicians' Memorial Hospital is a 38 bed general hospital under the supervision of a registered nurse trained in hospital administration. The Board of Directors represent each election district of the county. The hospital tries to be self-sufficient. In the past deficits have been covered by the county tax funds. There is no house staff. All patients receive complete medical care from the practising physicians. Without a house staff the practising physicians must spend considerable time caring for hospitalized patients.

Since the Health Department is close at hand it has become natural for the physicians to stop in to say "hello" and find out what is new. The Health Officer has an opportunity to talk with each actively practising physician several times a week. In the opinion of the Health Officer this has led to a very close and satisfying relationship.

New program planning and the review and revision of older programs can be and are discussed with the various physicians regularly. The County Medical Society has thus come to feel it has a big part in the planning of Health Department activities. When Health Department plans and activities come up for discussion at Medical Society meetings most of the members have had first hand knowledge of the subject from previous discussion with the Health Officer. It is rare that controversy develops among the members of the Medical Society concerning Health Department plans and activities. To the Health Officer, the coöperation of the County Medical Society is essential. As a result of this coöperation neither the Health Department nor the County Medical Society has tried to dictate to the other.

Recently the hospital has been seeking ways to increase its size and capacity. One suggestion for this was "move the Health Department out." When this suggestion was presented at a Medical Society meeting there was a unanimous vote to write the Board of Directors of the hospital requesting that the Health Department be maintained in quarters in the hospital. When the Health Department moved into the hospital it occupied a number of unused rooms that

* Presented at a Joint Session of the Health Officers, Laboratory, and Medical Care Sections of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., October 31, 1950.

had been designed for bed space and utility rooms. As both hospital and Health Department have expanded, each would like more space. Now all thoughts of expansion have joint housing in mind.

With one exception, the county physicians are general practitioners. This one exception is a general surgeon, a Fellow of the American College of Surgeons. Much of the consultation service in the various specialties other than general surgery is provided through the Health Department. In some segments of the population there seems to be a stigma attached to receiving free service through the Health Department. Our location in the hospital has helped remove this stigma. To some people, consultation at the hospital seems to be less odious than consultation at the Health Department.

Joint housing has made it simple for consultants to see bed patients without taking very much time from the general consultation work with ambulatory patients referred to the Health Department. Practising physicians find it easy to see and talk with consultants.

For the community, joint housing has been a convenience. It is no longer difficult to find the Health Department. Health activities are centered under one roof. The frequent referrals from one agency to the other are expedited.

In a sense the Health Department conducts a limited outpatient service in the hospital. Clinics in various fields, such as maternity, child hygiene, crippled children, rheumatic fever, and children's cardiac disease, tuberculosis, venereal disease, epilepsy, mental hygiene, vision and hearing are held regularly in the Health Department quarters in the hospital. It is hoped that these clinics may be helpful to the hospital in establishing a house staff. The clinics would furnish a nucleus of patients for a ward service under the care of the house staff.

The Health Department has a contract with the hospital for rapid treatment of patients with early syphilis. Patients with infectious syphilis can be admitted immediately.

To a limited extent, the Health Department furnishes home bedside nursing care. When referrals come from the hospital the public health nurse has an opportunity to meet the patient and learn the details of the illness before the patient is discharged. As the public health nursing staff expands to an adequate size this service will be increased. We anticipate that an expansion of this home nursing service will shorten the duration of hospitalization for many patients.

The Health Department has furnished two Gordon-Armstrong incubators to the hospital. Premature babies born at home are transported in special carriers by the public health nurses to the hospital. Very small premature babies cannot be adequately cared for in our hospital. Whether born at home or in the hospital such small premature babies are transported by the Health Department to one of the special premature centers in Baltimore. This program is under the supervision of our pediatric consultant who, incidently, has been named chief of the children's service at the hospital.

Occasionally, the joint housing can become embarrassing. Patients, not knowing the hospital is without a house staff and without routine outpatient service, come to the Health Department seeking medical care. Since the Health Officer is forbidden by law to practise medicine, referral to a physician in private practice must be made. Usually arrangements for the patient to be seen in the office of one of the local physicians can be made by telephone. For accidents and other emergencies the hospital has one of the local physicians on call. On rare occasions, when the physician on call could not be reached immediately, the Health Officer has rendered emergency medical care until the practising physician on call could arrive.

The hospital has available for con-

sultation the Health Officer who has been trained in administration as well as medicine and public health. Few days pass without conferences between the hospital superintendent and the Health Officer about problems of mutual interest.

As a member of the County Medical Society the Health Officer is automatically a member of the active staff of the hospital. Regular visits to the hospital office keep the Health Officer informed of new developments in the general health of the community. They give him leads for talking with the practising physicians about the health needs of the community and the part the Health Department may play in meeting those needs.

The laboratory, administered by the Bureau of Laboratories of the State Health Department, has been a major advantage to both the hospital and the County Health Department.[1] Without the hospital the county would not have had a branch laboratory. Without the Health Department the hospital could not have afforded the excellent laboratory and x-ray services it receives. Laboratory standards are maintained by the State Department of Health. Equipment and supplies come for the most part through the Health Department. The laboratory employees are all hired by the Health Department under State Civil Service. The hospital contributes a small amount toward salaries and maintenance of the laboratory.

This laboratory, in conjunction with the central laboratory of the State Department of Health, is prepared to perform almost any laboratory and x-ray procedure that might be requested by either hospital, physician, or Health Department. The laboratory has helped cement the close working relationship between private physicians, hospital, and Health Department.

In Charles County, Maryland, the hospital, Medical Society, Health Department, and members of the community believe the joint housing to be eminently successful. They plan to keep it that way.[2]

REFERENCES

1. Agreement between the State Department of Health and the Physicians' Memorial Hospital at La Plata concerning the operation of a laboratory in the hospital for the joint use of the State Department of Health and the hospital. Files of Charles County Health Department, March, 1941.
2. Coördination of Hospitals and Health Departments. Joint Statement of the American Hospital Association and the American Public Health Association. *A.J.P.H.* 38:700 (May), 1948.

For Food Inspectors

The Eighth Annual Dairy and Food Inspectors' and Sanitarians' School will be held at Michigan State College on April 10–13, 1951. This is an opportunity for the busy worker in these fields to secure the latest information on many aspects of food inspection with a minimum of time and expense. Full details from Dr. W. L. Mallmann, Department of Bacteriology and Public Health, Michigan State College, East Lansing, Mich.

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THE KEY TO CIVIL DEFENSE

CURRENT activity in providing for Civil Defense is a wholesome sign of the readiness of the American people to meet any emergency which may threaten the free nations of the world. If we are to be prepared for the contingencies which may arise, plans must be made which will require the highest degree of administrative skill; and in the preparation of such plans, the health administrator should have a central and determining part. Maximum possible health and safety—under critical conditions—are the objectives of Civil Defense and these are the fields in which the health officer is our responsible leader. The provision of safe and sanitary shelters, the movement of populations, the provision of emergency medical care, the furnishing of adequate and safe water and food supplies, the protection of the health and safety of war workers, the possible contingencies of biologic warfare and—above all—the mental hygiene approaches necessary to sustain morale—these are all public health problems. The health administrator is the one person trained to deal with them, in so far as any civilian experience can fit men for tasks of unknown and unimaginable magnitude.

It is encouraging, therefore, that federal directors in our national program have recognized these facts by placing the state health officers in key positions so far as state-wide planning is concerned. It is of vital importance that the same principles should operate in our county and city and local jurisdictions. They must be embodied in the actual local defense programs; and they must be recognized by local draft boards of all sorts. The loss of an individual physician may cost lives; but the loss of the medical administrator in charge of a local defense set-up may cost ten times as many lives. The same principle applies to engineers and nurses and other key public health personnel. War emergencies must be met by communities, not individuals; and the health department is the community agency vitally and essentially concerned.

Two questions arise in connection with this central factor in local Civilian Defense. What will happen to the still considerable sections of our country not yet provided with any full-time public health service? The state health organizations will have to fill the gap as far as possible, though decentralized local leadership

would be far more effective. It is to be hoped that this serious gap in our national defense plan will be filled by prompt passage by the Congress of a bill for stimulating the extension of full-time local health service, and a bill which is not hedged about with restrictions designed with the mistaken intent of protecting private practitioners from imaginary competition. The medical profession has no need to fear competition. We have far too few doctors to meet our national needs. Furthermore, the medical profession has traditions which prohibit a merely mercenary view of such problems, traditions which have been duly recognized in the endowments and grants poured out for the support of medical education.

A second and final question is less easy to answer. How is the supply of new public health personnel—physicians, engineers, nurses, and the rest which we so sorely need—to be recruited in time? We have needed such personnel more and more seriously each year; and the Civil Defense program makes the need even more urgent. We lack men and women in this field, not because the field is unattractive, but because it is unknown. How many students should we have in our law schools and medical schools if the average undergraduate had never heard of law or medicine? Such an average undergraduate does not realize that there is a profession of public health. If resources cannot be obtained for a well planned and intensive program of recruitment, the situation will grow more serious with every passing year. It will become acutely critical if Civil Defense passes from a possibility to an actuality.

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THE EPIDEMIOLOGY OF CARDIOVASCULAR DISEASES

IT is now the custom for writers on epidemiology to emphasize that this science is by no means limited to the area of microbic infections but covers the whole field of all diseases which may afflict the human race. This is a sound philosophy, for any effective measure of control obviously depends on knowledge of the causative factors involved.

It would, however, be a mistake to press the analogy too far and to expect that the epidemiology of the diseases of later life will yield up their secrets as easily as was the case with many community infections. Typhoid fever and diphtheria are definite and specific diseases and they cannot occur without the presence of the particular germ involved. Derangements of the heart and arteries are not, in many cases, "diseases" of this specific type. They represent pathological conditions of certain organs to which dozens of "diseases" may have contributed; or which may be the result of a normal and inevitable aging process inherent in the cycle of individual human life. As the old man said, "I have only eighty things the matter with me, each one a year of life."

It is these diseases of later life, however, which present the major public health challenges of the future. It is most essential that they should be studied so thoroughly that the contributory factors may be identified. We may confidently believe that such investigation will enable us to postpone degenerative changes and to mitigate their ill effects.

It is encouraging therefore to note that real beginnings are being made in the difficult and intensive and long-time epidemiological analysis of the problems of cardiovascular disease. The present issue of the *Journal* presents the program of one such study recently initiated by Dawber and his associates of the National Institutes of Health in the town of Framingham, Mass. It is expected that two-

thirds of the inhabitants of that town, now between the ages of 30 and 59 years, will be subjected biennially to a rigorous physical examination dealing with all factors possibly related to heart disease; and that this program will be continued for a period of *twenty years.*

Dr. Ancel Keys and his colleagues in the School of Public Health at the University of Minnesota are carrying on a not dissimilar study which includes very thorough annual examination of the cardiovascular status in 130 young men (18–26 years of age in 1947) and 300 older men (45–54 years of age in 1947) using refined new techniques for the evaluation of cardiovascular function. This study is already yielding high significant data in regard to " normal " standards and changes related to age.[1]

Such programs as these, planned for future decades, are a far cry from the few weeks in which Snow and Sedgwick elucidated the secrets of cholera and typhoid fever; but they represent the sort of approach which alone is likely to make possible control of at least certain of the factors underlying the development of cardiovascular diseases.

1. Cf., e.g., 1950 *J. Clin. Investigation* 29, 1347; 1950 *Science* 112, 79; 1950 Circulation 1, 1000, 1006.

PENNSYLVANIA ON THE BAND WAGON

FIFTY years ago Pennsylvania exerted an influence on American public health in keeping with the intellectual and economic and social leadership to be expected from the Keystone State. The writer can recall the days when Drs. Benjamin Lee and Samuel G. Dixon were among the outstanding statesmen in the American Public Health Association.

In recent years the prestige of the state has not been maintained at the same high level. In 1947 the Commission on Preventive Medicine and Public Health of the State Medical Society ranked Pennsylvania among the lowest of the 48 states in the quality of its public health work. Dr. R. P. Kandle and his American Public Health Association survey team later amply corroborated and documented the unfavorable estimate. It is said that 90 per cent of the department was under straight patronage appointment. Although Pennsylvania is the third largest state in population, only three states in proportion to population have fewer physicians certified by the American Board of Preventive Medicine and Public Health.

The Medical Society and survey reports were followed by a remarkable mobilization of citizen interest. The State Health Council was organized. The Pennsylvania Citizens Association for Health and Welfare vigorously entered the public health field. The Pennsylvania Tuberculosis and Health Society devoted its strong statewide organization to education on the state's public health needs. Public health became the number one item on the Pennsylvania League of Women Voters' Agenda. Finally, both gubernatorial candidates pledged support to the objectives of the survey. Governor Fine, during his campaign, declared, " Public health is a professional field. . . . The Secretary of Health and other executive, professional, and technical personnel should have the specialized training, the experience, and the professional leadership necessary to make Pennsylvania's Health Department outstanding." The Governor also pledged home rule, county health services, and a codification of public health law.

The primary objective of the citizen movement was obtained in January when

Governor Fine appointed Dr. Russell E. Teague as Secretary of Health. Dr. Teague was one of five well qualified physicians recommended by the medical profession and by outstanding faculties of preventive medicine and public health. He is a graduate of the Johns Hopkins School of Hygiene and Public Health with extensive and successful experience in public health administration, most recently as Assistant Director of Phipps Institute in Philadelphia. He is on leave from the regular corps of the Public Health Service. His appointment assures the leadership of a trained and experienced public health administrator.

Pennsylvania with its new Graduate School of Public Health at the University of Pittsburgh has an opportunity to blaze new trails. Pittsburgh's Health Department is already in process of professional reorganization. Staff consultation, research, and the training of key personnel should afford the Pittsburgh school many challenging opportunities for service during the next few years.

Another major need in Pennsylvania is being met by the Public Health Law Research Project at the School of Law, University of Pittsburgh. A foundation grant of $147,000 is financing a thorough analysis, restatement, and codification of the public health law. The object is to create a modern health code through close teamwork between the legal profession, professionals in public administration, and physicians and other public health workers.

We look for great things from Pennsylvania in the next decade. The whole arch of public health in the United States will be stronger, now that its Keystone has been strengthened.

Clearing House on Public Health Salary Information and Personnel Needs

A PAYROLL X-RAY DIAGNOSES THE ILLS

The Director of Mt. Sinai Hospital in New York, Martin R. Steinberg, M.D., in a recent article tells how an x-ray look, as it were, into the hospital's employment policies resulted in some salutary changes. He asked himself how hospitals manage to pay less to employees than private industry or business. Analysis proved that although they paid lower wages they were paying as much or more than private industry for a given amount of work. What they were not paying in wages they were paying in cost of frequent turnover, low productivity during a training period, excessive waste, and other by-products of low morale. He cites numerous examples of how by better management, efficiency standards were raised, economies effected, and salaries raised, but with actual payroll saving. As one example, nine secretaries widely scattered and receiving from 60 to 70 per cent of the private business scale, were brought together in a pool and their work equalized. It was then found that five could do the work, and they could be paid the going wage.

Dr. Steinberg's analysis can be found in the *Mt. Sinai Hospital Magazine* (October, 1950) where it is entitled "X-Raying the Hospital Payroll" or, in longer form, in *Modern Hospital* (May, 1949) where it is called "By Paying Less We Pay More." It has a number of useful suggestions for the health officer who needs some new remedies for old administrative ailments.

MERIT SYSTEM STARTS SECOND DECADE

Good Government, the bi-monthly publication of the National Civil Service League, continues to have interest for Clearing House readers. It will be remembered that the decade of merit system promotion by the Federal Security Agency was noted in numerous ways in 1950. The Civil Service Assembly of the United States and Canada commended this growth in its late 1949 meeting (*A.J.P.H.* 40:3 (Mar.), 1950, p. 367). The American Public Health Association at its 78th Annual Meeting in St. Louis in 1950 took note of this decade of progress and in resolution urged extension of merit systems. (*A.J.P.H.* 40:12 (Dec.), 1950, p. 1591).

It is still not too late to read the full story in A Decade of Merit System Progress in the May–June, 1950, issue of *Good Government*. Particularly to be noted is the Council of State Governments' report to the Hoover Commission that "the national emphasis on personnel supervision (in the grants-in-aid program) has resulted in a generally higher caliber of administration."

CURRENT A.P.H.A. PLACEMENT EXPERIENCE

The Vocational Counseling and Placement Service of the American Public Health Association reports the current "market" as reflected in its experience. An analysis, as of January 1, 1951, shows only 195 candidates for 473 openings.

In the separate professions, however, there are significant differences. For physicians, for example, there are 276 openings and only 36 candidates, or a ratio of nearly eight to one. Engineers are next with 34 openings and 18 candidates. The next most frequent opportunities are for laboratory technicians

of various kinds. There are 48 positions and 27 candidates registered. This same general trend prevails for dentists and veterinarians. For nutritionists there are 5 openings and 5 candidates, and 26 opportunities for statisticians against 10 candidates.

There are more candidates than openings for non-medical administrators and health educators; 4 jobs and 15 candidates for non-medical administrators, and 37 openings and 48 candidates for health educators. There are probably two factors that must be considered in relation to the figures for health educators. One is that many persons who register for such positions or who use the title of health educator do not have the qualifications recommended in *Educational Qualifications of Community Health Educators*. Many applicants are persons who have bachelor's and even master's degrees in health and physical education but lack specific training and experience in public health. Another possible factor is that when funds are short the position of health educator is apt to be left vacant.

Some of the same factors are probably operating in the case of non-medical administrators. Since this is a relatively new classification, neither qualifications nor job specifications have been very clearly defined. As the non-medical administrator becomes known, the health officer will undoubtedly find he can do many things now done by professional staff in short supply.

Nurses are not included in this analysis because the A.P.H.A. looks to the National Organization for Public Health Nursing and the American Nurses' Association for vocational and placement work among public health nurses. One New York nursing placement agency recently reported about 110 positions and 90 candidates for public health and industrial nurses. Approximately one-fourth of the nurses on file were interested in industrial positions, the remainder in public health.

While the actual mathematical ratio of positions to candidates in the different classes changes somewhat, the general picture remains very much the same as in earlier years. It is abundantly clear that capable trained public health workers remain in very short supply.

AN INTERESTING WHO REPORT

Reports which are interesting because of context, method, and skilled presentation are unusual. The Report on the First Session of the Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel *(WHO Technical Report No. 22)* is one which is. Undergraduate and graduate training are considered as well as matters of fellowship and exchange of scientific information. An appendix is "suggested basic requirements for a school of public health." Another appendix is "medical personnel: estimated ratios" which gets into the complex problem of needs expressed in numbers of medical and ancillary personnel. The latter group include such groups as medical social workers and laboratory technicians.

Particular stress is laid on the present world-wide deficiencies in the preventive, social, and psychosomatic aspects of the training of most health personnel. The method of establishing an outline for a long-term program including such items as general aims, anticipated achievements, projects, working means, role of WHO, etc., is worth noting. Copies are available from the Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y., at 25 cents.

SALARIES IN ILLINOIS

The Division of Local Health Services of the Illinois Department of Health has published as of June, 1950, average salaries of the full-time employees of local health departments in the state. A total

of 304 persons are involved, more than two-thirds in county departments, nearly one-third in city departments. Salaries are reported in 16 job classification groups. This material can probably be secured from Dr. Charles F. Sutton, deputy director, Division of Local Health Services, Illinois Department of Public Health, Springfield.

"THE DIPLOMATE" ON PUBLIC HEALTH

The Diplomate, of the National Board of Medical Examiners, in a sober two page item, wraps up the essential facts about a career in public health for the physician. A good deal of stress is laid on such intangible factors as community service and standing, but the more mundane items of salary, tenure, paid vacations, and others are not without their attractive features. "The future of the well trained public health physician is bright," is its conclusion. This article might well be used as the basis for a recruitment document. Opportunities in Public Health. *The Diplomate*, October, 1950, 225 So. 15th St., Philadelphia 2.

ESCALATOR VACATION POLICIES

"An increasing number of cities are adopting 'escalator' vacation policies providing longer vacations for employees based on length of service. The most recent cities to adopt the graduated vacation leaves are Pontiac, Mich., and Berkeley, Calif., where employees with 10 or more years of service receive three weeks vacation; Winnetka, Ill., with three weeks after 15 years service; and Mount Lebanon, Pa., with three weeks after 20 years service. The 1950 *Municipal Year Book* shows at least 100 other cities with some form of graduated vacation plan. Similar plans are in effect in Toronto and Montreal, Canada, the State of Virginia, and the province of British Columbia. The large cities having graduated vacation leave provisions include Minneapolis, Chicago, Philadelphia, Buffalo, Los Angeles, San Francisco, Boston, and Baltimore." *Public Management*, October, 1950.

THE CLEARING HOUSE IS RECOGNIZED

In the January issue of "Merit System Methods" of the Public Health Service, appears a brief summary of Franklyn B. Caffee's article on "Fringe Benefits for Public Health Workers" which appeared in the October, 1950, Clearing House. Does this argue that one way to widen the influence of the Clearing House is to have more members more frequently contribute their high caliber articles to Clearing House?

Credit Lines

INTERNATIONAL CHILDREN'S CENTER

The International Children's Center in Paris celebrated its first birthday on January 18, 1951. A French institution by statute, it is nevertheless international in character and supported in part by WHO and UNICEF. Activities currently in operation or planned include research studies. Among the projects in this field already under way or shortly planned are a study of the factors producing congenital malformations, a study of BCG vaccination against tuberculosis, a study of the effect of separation of very small children from family upon their psychic and physiological development, research on child psychology, and a study of pertussis vaccination. Other activities further planned are a "center for the readaptation of crippled children" and an information service.

The *Courrier,* a monthly magazine in both French and English, is one of the sources of information. Its first issue, published in November, 1950, details fully and imaginatively the complicated steps through which the Center came into being and especially the world-mindedness of the French Government in sharing what had long been one of its hopes with the rest of the world. The first issue of *Courrier* says "The men who are devoting themselves to this task would like to be able to love the time in which they live. They know that our time is responsible for so much hatred and so many horrors, and guilty of such a backward step of civilization that they would like to help mark up one good thing to its credit: the love and the good care of children."

The Executive Board of the Center is made up of nine members, six appointed jointly by the French Minister of Foreign Affairs and the Minister of Public Health, three by the joint action of the other six. Its chairman is Professor Robert Debré of the University of Paris Faculty of Medicine, Children's Medical Clinic of Paris. Its two vice-chairmen are Lord Boyd Orr of Britain, and Dr. Ludwik Rajchman of Poland, Chairman of UNICEF's Executive Board. Only two of the others are Frenchmen, one each is from Australia, Brazil, Sweden, and the United States. The last named is Dr. George Quest, Professor of Pediatrics, University of Cincinnati College of Medicine.

The address of the *Courrier* is 2 bis, Avenue du Parc de Passy, Paris (16e). Its price is 240 francs per issue, 2400 francs per year. It may be paid for through UNESCO Book Coupons, which avoids transfers of currency exchange.

Professor Debré, who is also French representative on UNICEF, was in the United States in February in connection with his UNICEF and Children's Center responsibilities. He inspected a number of public health activities in this country and delivered a number of lectures.

SOUTHERN BRANCH PROCEEDINGS

The Southern Branch, A.P.H.A., has produced another attractive and interesting "Proceedings." Besides the program and complete list of officers and committee members a variety of well selected papers from the 1950 meeting are presented. These include details of the eradication of malaria and the growth of medical care programs in the South, discussions on communicable diseases, home accident prevention, evaluation of dental programs, and international educational exchange. There is something here for every public health worker.

Perhaps the Secretary, L. M. Graves, M.D., of the Memphis-Shelby County Health Department, 879 Madison Avenue, Memphis, Tenn., can provide a copy.

DEMOCRACY CAN MEAN MILK, TOO

The National Sanitation Foundation suggests quality milk in ample supply for all as a basic test for a democracy. In *Quality Milk—A Symbol of Democracy,* it tells in detail the difficulties the dairy farmers and processors overcome in supplying communities with safe milk of good quality. Beginning with keeping the cow healthy, the various processes through which the milk travels from cow to dinner table are described both in words and photographs. The result is both to help the nutritionist in her educational program to get families to use milk liberally in the daily diet, but also to help a community understand something of the services provided by its health department. A special section is devoted to the work of the milk sanitarian.

The author of the pamphlet is James A. King, on loan to the National Sanitation Foundation from the Public Health Service. *Bulletin 1-E,* National Sanitation Foundation, Ann Arbor, Mich., 25¢ (and worth it).

A HOSPITAL REPORTS TO ITS FRIENDS

In October, 1950, the Mount Sinai Hospital began publication of the *Mount Sinai Hospital Magazine,* which it calls "A Publication for friends of the hospital." Readers are reminded that "a voluntary hospital can sometimes neglect to keep in touch with its friends or to be gracious with respect to its benefactors." Hence, the magazine's purpose is to keep in touch with both these groups by giving them "a representative sampling of the hospital's thinking and activities, its problems and its aspirations." And this first issue, at least, pays its readers the compliment of going beyond chitchat to give them a real picture of significant activities—the physical plant additions in relation to the growth of medical science, the follow-up clinics, and others. Perhaps this is a hint for other bulletins —the public will take you seriously if you take it seriously.

DRIVER EDUCATION BY GENERAL MOTORS

Made available late in 1950 by the General Motors Corporation, was a correlated series of motion pictures and slide films on driver education for use in high schools. The series, including three motion and 12 slide films, cover driver qualifications, functioning and care of the automobile, and both basic and advanced driving skills. The films were produced with the advice of a special Committee of the National Commission on Safety Education, and a set was donated to each state department of education.

Motion pictures are 16mm, black and white, sound films, with running times of 10 to 15 minutes. Slide films are 35mm, black and white, silent films, averaging about 60 frames each. A booklet outlining the objectives, content, related projects, and references for each film, together with suggestions on how to use the film series, is provided for teacher use.

Preview arrangements should be made with each state health department. The complete series and teacher's guide can be purchased at the cost of film prints only from General Motors Photographic, General Motors Building, Detroit 2, $69.75.

WHAT THE DOCTOR'S PATIENTS READ

The Schering Corporation has developed an interesting new service for doctors. Through a monthly publication, *Medicine in the News,* it digests articles on medicine and the medical sciences currently appearing in the lay press. Its reasoning is that "advance knowledge of what patients read about develop-

ments in medicine, and of where they read it, enables the physician to cope better with the unusual problems in the patient-doctor relationship which lay articles sometimes create." But isn't this taking advantage somewhat, of the unsuspecting patient? The publication is apparently available to physicians without charge. Schering Corporation, 2 Broad St., Bloomfield, N. J.

COMICS KEEP COMING

Health Publications Institute has a new series of comics on VD. "Joe Wises Up" and "No Drug on the Market" deal with gonorrhea—proper treatment and the futility of self treatment. They are each 4 pages, 4 colors, $1.50 per 100; $10 per 1,000.

"Sidewalk Romance," in humorous doggerel about syphilis is 8 pages, 4 colors, $3 per 100; $25 per 1,000. A "Straight Tip" deals with bringing syphilis contacts under treatment, 4 pages, 4 colors, $1.50 per 100; $10 per 1,000. These are all useful for a generation brought up on comics. 216 N. Dawson St., Raleigh, N. C.

DON'T!

This is the brief title given a handy little pamphlet outlining measures that should not be taken or observed in the preparation, storage, and serving of foods. The list of verboten measures is broken down into sub-headings describing different phases of food preparation and service. The pamphlet, published by the Public Health Committee of the Paper Cup and Container Institute, 1790 Broadway, is free.

ANNUAL REPORTS

"New York City's Health in 1950" was released on January 3, 1951. Perhaps its outstanding fact is that it can be compiled so speedily. The end of the half century inspires note of some contrasts between 1900 and 1950. Total population of the city has more than doubled, but the newest borough has multiplied by more than 10, whereas the oldest has only a 5 per cent increase. The 1950 death rate is less than half that of 1900; the infant mortality rate less than a fifth of what it was 50 years ago. The maternal mortality rate is 60 per cent below the estimated "irreducible minimum" of even 20 years ago. It is an illuminating report and represents in microcosm the half century's public health history and the many points at which a community health service touches the lives of citizens.

The Ohio River Valley Water Sanitation Commission has issued its *2nd Annual Report*, for 1950. With a handsome red and black cover it's an altogether satisfactory example of the printer's art. Eight-state coöperation in restoration of degraded water resources is itself heartening. And in the highly populated and highly industrialized area of the Ohio Valley the job is peculiarly important to defense and mobilization. But the report warns that a decade is needed to build the physical facilities, and much longer to restore waters. This report should be read by every sanitary engineer, even the one serving a small area. The city of 10,000 can contribute its share to pollution and also to restoration. Edward J. Cleary is the Executive Director of the Commission. Its headquarters are 414 Walnut St., Cincinnati 2.

The *Fifth Annual Report of the Life Insurance Medical Research Fund* provides a detailed summary of the many distinguished contributions to the knowledge of hardening of the arteries, high blood pressure, and rheumatic fever which have been possible by the aid of the Fund. It continues the story of progress which was recognized by a Lasker Award at the 1949 A.P.H.A. Annual Meeting. Copies may presumably be obtained from the Fund, New York Academy of Medicine Building, 2 East 103d Street, New York.

We Come of Age, 1949 is the report of the 21st year of consecutive operation of the Sullivan County Health Department in Tennessee. For at least 10 of those years, the present incumbent, J. W. Erwin, M.D., has been the Health Officer. His 1949 report is dignified and factual without being stuffy. It is worth reading by other health officers and their staffs with the need to share their works and their hopes with the public they serve. Sullivan County Health Department, Blountville, Tenn.

Well—What Do You Know! Good Health, is the 8th annual report of the Will County (Ill.) Health Department and the first by its present Health Officer, L. L. Fatherree, M.D. It's a breezy, informative report whose text is "Public health is people." It's a good number to have in the file you keep for ideas on annual reports. Will County Health Department, 21 East Van Buren St., Joliet, Ill.

WORTH ACQUIRING

This Is a Family Affair and *Now You Have Your Baby,* are published by the Oakland (Calif.) Health Department to help parents through the prenatal and baby days, whether it be the first or the sixth baby. They are in simple tablet form, pink and blue paper respectively. Their effectiveness depends upon the direct and simple language in terms of actual situations rather than in general terms.

These are also designed for use by clinic and field nurses to guide their maternal and child hygiene interviews. Oakland City Health Department, Oakland 12, Calif. No information as to price.

Cancer Services and Facilities in the United States, 1950 is described as "a source book for persons concerned with the cancer problem and particularly for those engaged in cancer control work." State by state cytology test, home nursing, home medical care, and free tissue diagnostic services are listed. An analysis of state cancer laws is included. Public Health Service *Publication, No. 14,* U. S. Gov. Ptg. Office. Washington 25, D. C. 35¢.

The Mental Hygiene Consultant: Role, Basic Concepts and Functions and *Parents of the Orthopedically Handicapped Child* have recently been published by the Association for the Aid of Crippled Children. They are both written by E. Louise Ware, the Association's mental hygiene consultant. The purpose is to meet "the need for a ready source of information and bibliography of books and articles on the mental hygiene consultant," called an "educator-counselor," and on mental hygiene.

The second was written "in order that present-day ideas and practices in this field might be obtainable in handy form —to parents of orthopedically handicapped children." Association for the Aid of Crippled Children, 530 Fifth Avenue, New York 19.

Those Soft-treading Modern Shoes has been reprinted from *Today's Health.* It is a brief description of the foot troubles that often arise from present-day shoes. American Medical Association, 535 N. Dearborn St., Chicago 10.

There's No Place Like Home made its debut at the home accident prevention exhibit of the 78th A.P.H.A. Annual Meeting in St. Louis. It is designed to stimulate public health workers to undertake imaginative home accident prevention programs. An attractive pamphlet, humorously illustrated, it is the work of the Division of Sanitation, U. S. Public Health Service, from which copies are presumably available. Washington 25, D. C.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Food Poisoning—*By Elliott B. Dewberry (3rd ed.). London: Leonard Hill, Ltd.*, 1950, 318 pp. Price, 17s.6d.

The second edition of this volume was recommended to health workers in a previous review (Feb., 1948) in this *Journal*.

This new edition has been thoroughly revised, necessitating an expansion of nearly 70 pages. Textual changes were found on more than half of the pages of the volume. References to many recent articles in the literature are found throughout. There is a useful check list of texts consulted in the appendix. Better paper and blacker type make for easier reading than in the wartime edition.

Contrary to the opinion of most workers, the author still emphasizes the possible formation of toxins by salmonella organisms. The illustrative examples might readily be explained by an accompanying staphylococcal enterotoxin.

The volume is the most comprehensive review available of the causative agents of food poisoning. It should be at the elbow of all those with responsibilities in the investigation of such outbreaks.

ROY F. FEEMSTER

Health Services in State Institutions of Higher Learning in Mississippi—*Report of a Survey by a Committee of the American Council on Education. F. O. Robertson, Survey Director. Washington, D.C.: American Council on Education*, 1950. 67 pp. Price, $1.00.

As indicated by its title, this report describes the facilities, personnel, and program for student health services in the seven institutions of higher learning in Mississippi and presents recommendations for improving the program of each college or university.

The opening chapter, under a heading Objectives of Student Health Services in Institutions of Higher Learning, presents a brief philosophy of student health services, which serves as a standard against which the program in each institution is measured. Also in this chapter, is a section on administration, financing, and personnel.

A chapter on General Recommendations deals with coöperative efforts between the various institutions and with the standardization of certain procedures. It is recommended "That there be a close liaison between the institutions of higher learning and the Mississippi State Board of Health," and "That record forms used in the clinics and hospitals of the institutions be standardized." Other general recommendations relate to counseling procedures, immunization requirements, student health fees, extent of program, sanitary standards, and amount of medical and nursing personnel.

Although the contents of this report deal specifically with institutions in Mississippi, it will interest all who have responsibility for student health services in a college or university

CHARLES C. WILSON

How To Survive an Atomic Bomb—*By Richard Gerstell. Washington, D.C.: Combat Forces Press*, 1950. 150 pp. Price, $1.95.

Here is a volume written by an accepted expert in the field of atomic defense. It is written for the average

man, woman, and child and does not attempt to explain the scientific why's and wherefore's of atomic bombs or nuclear fission. It is written in terms that the average person should understand. The general presentation is one of question and answer. The volume points out precautions that should be taken by everyone for individual protection in case of an atomic bomb attack.

Aside from the simple explanation of what any one of us should and can do to minimize the effect of atomic bombs, the volume should also be of interest to public health people as a method of mass education. The simple approach is suitable for presenting certain features of public health activities that frequently get bogged down in technical terms and explanations. The contents of the volume should also be valuable to health officers, public health nurses, health educators, and other members of the public health team who may be called upon to speak before citizen groups on the hazards of atomic warfare.

A paper-bound volume at 25¢ per copy is also available.

FRANCIS B. ELDER

Priorities in Health Services for Children of School Age—*Committee on School Health. Washington, D.C.: Children's Bureau, Office of Education, Public Health Service, Federal Security Agency,* 1950. 24 pp.

This booklet is the resumé of a conference on the problems of health programs for school age children, and specifically the problem of securing the medical care that children need following examination. It defines some basic premises, and analyzes the resources which are available in certain broad categories of communities—"no-nurse," "nurse," "nurse, physician, part-time," and "adequate staff." Using the "no-nurse" community as a basic unit, the report presents a delineation of specific priorities in (1) planning health services, (2) general measures for health promotion, (3) health appraisal, and (4) care and follow-through. It also indicates some general principles for expansion of services with increased resources.

Care and follow-through to definitive diagnosis and treatment of conditions discovered through the health service program is an extremely important part of the program, and one which has all too frequently been lacking. This report outlines an objective method for arriving at priorities in conditions to be cared for, irrespective of the source of funds. It suggests that the priority a condition should command in regard to care and follow-through of children of school age be determined by the degree to which the condition:

a. Interferes with satisfactory progress in school
b. Affects unfavorably the emotional status of the child
c. Is amenable to preventive measures
d. Is progressive to a serious handicap or disease or is likely to affect the eventual health of the child
e. Is common to many children throughout the country or is peculiar to the specific community
f. Endangers the health of others in the family or community
g. Is correctable by medical treatment
h. Requires limited expenditure of funds per case
i. Has been neglected in the past
j. May be adequately treated by facilities and personnel which are or can be made available

The report includes some examples of conditions receiving high and low priority by each one of these criteria. It also shows with tables how, when each criterion and each condition is given a numerical weight, a total score can be determined for each condition. It suggests that in communities using this method a small working committee of technically competent personnel might modify the weights or change the details of scoring to suit local circumstances.

Here is a beginning, at least, in establishing definite guides for facing the important problem of obtaining specific health improvements for the individual child. It is not the final answer, by any means, but it presents a fresh approach which merits careful consideration and exploration by all who are concerned with planning and conducting health services for school age children.

WARREN H. SOUTHWORTH

Problems of Infancy and Childhood—Transactions of the Third Conference, March, 1949. *New York: Josiah Macy, Jr. Foundation,* 1950. 156 pp. Price, $1.25.

In the words of the 24 participants, for the most part psychiatrists, psychologists, and pediatricians, this report gives observations and discussions concerning anxieties of new mothers expressed to their physicians, the psychological situation of the mother and her new-born child on going home from the hospital, and emotional reactions of children to tonsillectomy and adenoidectomy. The observations which are part of formal studies not yet complete are offered as data worth sharing with others for an exchange of ideas.

Obviously material produced in these circumstances is of interest to persons engaged in psychological and psychiatric research or desirous of keeping abreast in this field. But it happens also to have some important implications for workaday professional personnel in maternal and child health and crippled children's services.

From the first two discussions emerges the fact that many new mothers are greatly worried because they are ignorant about elements in normal infant physiological behavior which are seldom included in our teaching efforts. In the third discussion the ways in which hospitalization, anasthesia, and surgery are painful experiences to children are graphically brought out.

This reviewer believes that a thoughtful perusal of the report will be worth the time of all concerned with policy and procedure in maternal and child health and crippled children's programs, as well as those dealing with mothers and children directly. By applying the facts contained in the report we will make our programs more humane.

HESTER B. CURTIS

Saints, Sinners, and Psychiatry—*By Camilla M. Anderson. Philadelphia: Lippincott,* 1950. 206 pp. Price, $2.95.

Usually scientific theories are developed to explain phenomena. This involves patient work, the accumulation of data, classification, the formulation of an explanation, and a checking of the hypothesis against new data. If more than one theory will explain all the facts, the simplest is chosen. Any scholarly presentation includes adequate bibliographical references to previous work bearing on the problem. It is only after the scientific formulation of a theory has been established that attempts are made to present the material to the lay public in such a manner as to be understandable without the scientific training and vocabulary of the expert.

The author, in this book, is presenting a personal theory of human behavior. There are no supporting data and reference to the work of others is most cursory. Only five authors are referred to, and four of these (Freud, Adler, Sullivan, and Schilder) in one sentence which states that the new theory has some details in common with theories of the indicated authors. These details are not mentioned.

The "fine print" included with the "headlines" which furnish the basis for arriving at the concepts presented by the author are extracts from cases chosen by the author to illustrate concepts already arrived at. Such illustrations may be mistaken by the untrained for scientific data. This book is presented to the

layman apparently because there are not enough psychiatrists to go around, or enough money to pay for them, and therefore every person must solve his own problems, which becomes possible through the theory presented by the author.

The thesis is that "the conscious or unconscious goal of every person in every detail of his life is to maintain himself as free from anxiety as possible." According to the author, there are three ways in which an individual may deal with anxiety, (1) convert the anxiety into physical symptoms, (2) try to destroy the anxiety-provoking agent, (3) withdraw from the source of anxiety.

The author warns that some may reject the theory because of its simplicity. It seems more likely that its rejection will be based more on its lack of scientific validation than its simplicity.

JAMES M. CUNNINGHAM

Public Health and Welfare in Japan — Annual Summary, 1949. Vols. I and II. *Supreme Commander for the Allied Powers, Public Health and Welfare Section, APO 500.* Vol. I, 145 pp. Vol. II, 113 Tables.

This is a summary prepared by the Public Health and Welfare Section of the General Headquarters, Supreme Commander for the Allied Powers in Japan, recounting activities and programs intended to further the health and welfare program of the occupational mission and supplementing for the year 1949 the recent report that covered the period 1945–1948.

These volumes ought to be in the hands of every epidemiologist who wishes to orient himself to the global aspects of disease prevalence. For example, Charts 13 and 14 recount what has been happening to tuberculosis in Japan in comparison with the rest of the world. Dependable mortality data for Asiatic countries are of course hard to come by but the reviewer knows of no collection representing a large population of Asiatics that is more dependable than those from Japan. The extent and duration of the wartime excess mortality from tuberculosis presents a fascinating study. The annual mortality rate from tuberculosis of all forms in Japan has not been below 200 per 100,000 since 1935 until the last 3 years. It is extraordinary to see how level this curve has remained during the last 30 years, while the rest of the world has enjoyed substantial declines to levels in the vicinity of 50. For us in the United States it is noteworthy that one has to go back to the turn of the century to reach mortality rates of tuberculosis as high as the present rates in Japan. There are many other stimulating aspects of this report.

REGINALD M. ATWATER

Veterinary Bacteriology and Virology—*By Ival Arthur Merchant (4th ed.). Ames, Iowa: Iowa State College Press,* 1950. 885 pp. Price, $8.50.

This, the fourth edition of Dr. Merchant's book, is a textbook primarily for undergraduate students but will be of assistance in bringing many graduates of some years ago up to date. The book is divided into four parts. Part one takes up the general biology of microörganisms and goes beyond some other similar books in presenting synonyms and history, distribution and transmission, morphology and staining, culture requirements and characteristics, resistance, biochemical properties, antigenic structure and toxins, pathogenicity, immunity, and laboratory diagnosis. This part also contains a chapter on antibiotics which has been greatly enlarged from previous editions.

Part two discusses infection, resistance, and immunity. The several chapters cover mechanism of infection and principles of immunity, toxins and antitoxins, agglutination and precipitation, cytolysis and complement-fixation, phagocytosis, anaphylaxis, and allergy. The

third part takes up the complete classification of bacteria, using the modern nomenclature according to *Bergey's Manual*.

Part four is an addition to previous editions. It contains a discussion of filtrable viruses and is written by R. A. Packer. This addition certainly makes the volume complete.

L. W. ROWLES

Suggested State Water Pollution Control Act and Explanatory Statement—*Washington, D.C.: Division of Water Pollution Control, Public Health Service, Federal Security Agency,* October, 1950. 26 pp.

All persons concerned with water pollution control and especially those who see the necessity of some uniformity will wish to be familiar with this proposed uniform control act developed by the Division of Water Pollution Control of the Public Health Service.

Surgeon General Scheele in the Foreword points out that in adopting the Water Pollution Control Act of 1948 the Congress acted not only to recognize, preserve and protect primary responsibilities and rights of the states in producing clean waters, but also encouraged the enactment of uniform state laws as a means toward the attainment of this objective. An earlier draft of the suggested Control Act was reviewed by more than 800 individuals and organizations representative of all the water users in the United States. Later a committee of consultants representing the state water pollution control authorities and state officials evaluated the draft and the comments received.

The present draft is endorsed by the Council of State Governments and is recommended to the states for favorable consideration. The entire process represents a constructive and orderly way of achieving legal uniformity in an area where it is imperative.

REGINALD M. ATWATER

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ANALYTICAL BALANCE. ITS CARE AND USE. William Marshall MacNevin. Sandusky, Ohio: Handbook Publishers, 1951. 73 pp. Price, $1.50.

ARTHRITIS AND COMMON SENSE. Dan Dale Alexander. Boston: Bruce Humphries, 1951. 178 pp. Price, $2.50.

BIOLOGICAL ANTIOXIDANTS. Transactions of the Fourth Conference December 8–9, 1949. New York, N. Y.: Josiah Macy, Jr. Foundation, 1950. 181 pp. Price, $3.25.

BLOOD CLOTTING AND ALLIED PROBLEMS. Transactions of the Third Conference January 23–24, 1950. New York: Josiah Macy, Jr. Foundation, 1950. 224 pp. Price, $3.00.

CANCER DIAGNOSTIC TESTS. Principles and Criteria for Development and Evaluation. John E. Dunn and Samuel W. Greenhouse. Single copies from National Cancer Institute, Bethesda. Quantity orders from Gov. Ptg. Office, Washington. 1950. 23 pp.

CONTEMPORARY LIGHTING IN MODERN AND TRADITIONAL INTERIORS. New York: Illuminating Engineering Society, 1951. 58 pp. Price, $1.00.

CHILD WELFARE FILMS. An International Index of Films and Filmstrips on the Health and Welfare of Children. UNESCO and WHO. New York: Columbia University Press, 1950. 213 pp. Price, $1.00.

DIAGNOSTIC STANDARDS AND CLASSIFICATION OF TUBERCULOSIS. National Tuberculosis Association. Secured from State or Local Associations, 1950. 64 pp. Write for rates.

EPIDEMIOLOGY OF MENTAL DISORDER. New York: Milbank Memorial Fund, 1950. 198 pp. Price, $.50.

FAMILY CENTERED MATERNITY AND INFANT CARE. Supplement I to Problems of Infancy and Childhood Transactions, Fourth Conference, 1950. New York: Josiah Macy, Jr. Foundation, 1950. 29 pp. Price, $.25.

FLORENCE NIGHTINGALE. Cecil Woodham-Smith. New York: McGraw-Hill, 1951. 382 pp. Price, $4.50.

FOOD VALUES OF PORTIONS COMMONLY USED

(7th ed.). Anna dePlanter Bowes and Charles F. Church. Philadelphia: Anna dePlanter Bowes (Northeast Corner, 7th and Delancey Streets), 1951. 94 pp. Price, $2.25.

FOR A BETTER COMMUNITY. Detroit, Mich.: The Community Chest and Council of Social Agencies of Metropolitan Detroit, 1950. 72 pp. Price, $.50.

FROM LITTLE ACORNS. Frances Westgate Butterfield. New York: Renbayle House, 1951. 158 pp. Price, $2.50.

A GUIDE TO MEDICINE. Ivo Geikie-Cobb. New York: Duell, Sloan & Pearce, 1951. 416 pp. Price, $5.00.

HEALTH AND HUMAN RELATIONS IN GERMANY. Report of a Conference on Problems of Health and Human Relations in Germany, Princeton, N. J., June 26–30, 1950. New York: Josiah Macy, Jr. Foundation, 1950. 207 pp. Price, $1.00.

HISTORY OF ENGLISH PUBLIC HEALTH. 1834–1939. W. M. Frazer. London: Bailliere, Tindall and Cox. 498 pp. Price, 35 *s*.

HOSPITAL CONSTRUCTION PROGRESS REPORT. Albany, N. Y. New York State Joint Hospital Survey and Planning Commission, 1950. 27 pp.

INTO THE WORLD. Victoria Emerson and James J. Thompson. New York: Woman's Press, 1950. 125 pp. Price, $2.00.

JAMES LIND: FOUNDER OF NAUTICAL MEDICINE. Louis H. Roddis. New York: Henry Schuman, 1951. 177 pp. Price, $3.00.

LEG AMPUTEE: PRE-PROSTHETIC TRAINING. Signe Brunnstrom and Donald Kerr. West Orange, N. J. The Kessler Institute for Rehabilitation, 1951. 44 pp.

MANUAL OF ARTIFICIAL RADIOISOTOPE THERAPY. Edited by Paul F. Hahn. New York: Academic Press, 1951. 310 pp. Price, $6.80.

MEAT HYGIENE. A. R. Miller. Philadelphia: Lea & Febiger, 1951. 420 pp. Price, $7.50.

MEDICAL PSYCHOLOGY. G. K. Yacorzynski. New York: Ronald Press, 1951. 535 pp. Price, $6.00.

METABOLIC INTERRELATIONS. Transactions of the Second Conference, New York, N. Y. January 9–10, 1950.

ORTHOPAEDIC NURSING. Frederick J. Knocke and Lazelle S. Knocke. Philadelphia: F. A. Davis, 1951. 682 pp. Price, $5.00.

PAUL EHRLICH. Martha Marquardt. New York: Henry Schuman, 1951. 255 pp. Price, $3.50.

PHARMACOLOGY. Michael G. Mulinos. New York: Oxford University Press, 1951. 484 pp. Price, $3.00.

POPULATION OF INDIA AND PAKISTAN. Kingsley Davis. Princeton, N. J.: Princeton University Press, 1951. 260 pp. Price, $7.50.

PRIMER ON FRACTURES (6th ed.). American Medical Association. New York: Paul B. Hoeber, 1951. 109 pp. Price, $2.00.

RECOVERY FROM APHASIA. Joseph P. Wepman. New York: Ronald Press, 1951. 276 pp. Price, $4.50.

RURAL SOCIAL SYSTEMS. Charles P. Loomis and J. Allan Beegle. New York: Prentice-Hall, 1950. 873 pp. Price, $6.75.

SANITARY FOOD HANDLING. Bernard E. Silver. Albany, N. Y.: New York University of the State of New York, 1950. 198 pp. Price. $2.65.

SANITARY INSPECTOR'S HANDBOOK (7th ed.). Henry H. Clay and Sir Wilson Jameson London: H. K. Lewis, 1950. 565 pp. Price, 25 *s* net.

SANITARY MILK AND ICE CREAM LEGISLATION IN THE UNITED STATES. A. C. Dahlberg and H. S. Adams. Washington: National Research Council, National Academy of Sciences, 1950. 59 pp.

SCIENCE OF HEALTH (2nd ed.). Florence L. Meredith. Philadelphia: Blakiston, 1951. 452 pp. Price, $3.75.

SERUM SICKNESS. C. Frh. Von Pirquet and Bela Schick. Baltimore: Williams & Wilkins, 1951. 130 pp. Price, $3.50.

SLUMS NEW YORK FORGOT. Report by the Committee on Housing. New York: Community Service Society, 1951. 21 pp.

SOCIAL WORK YEAR BOOK 1951 (11th ed.). Margaret B. Hodges. New York: American Association of Social Workers, 1951. 696 pp. Price, $5.00.

SYMPOSIUM ON THE HEALTHY PERSONALITY. Transactions of Special Meetings of Conference on Infancy and Childhood June 8–9 and July 3–4, 1950. New York: Josiah Macy, Jr. Foundation, 1950. 298 pp. Price, $2.50.

TELL ME DOCTOR. Henry Barnard Safford. New York: Renbayle House, 1951. 256 pp. Price, $2.95.

TERMINAL CARE FOR CANCER PATIENTS. Chicago: Central Service for the Chronically Ill of the Institute of Medicine of Chicago, 1950. 211 pp. Price, $1.25.

TYPHUS FEVER IN CALIFORNIA. San Francisco: California State Department of Public Health, 1950. 99 pp.

U. S. CIVIL DEFENSE HEALTH SERVICES AND SPECIAL WEAPONS. Washington: Gov. Ptg. Office, 1950. 260 pp. Price, $.60.

UNRAVELLING JUVENILE DELINQUENCY. Sheldon and Eleanor Glueck. New York: Commonwealth Fund, 1950. 399 pp. Price, $5.00.

WATER QUALITY AND TREATMENT (2nd ed.). American Water Works Association. New York: AWWA, 1950. 451 pp. Price, $5.00.

YEARBOOK OF PSYCHOANALYSIS. Sandor Lorand,

Managing Editor. Vol. VI. New York: International Universities Press, 1951. 307 pp. Price, $7.50.

YOUR BODY—HOW TO KEEP IT HEALTHY. John Tebbel. New York: Harper, 1951. 229 pp. Price, $2.95.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Lively Disagreement—So concludes a British Medical Association committee: "The inadequacy of the present provision for the diagnosis, treatment, and aftercare of tuberculosis in this country is a national scandal which can no longer be viewed with complacency." And a Medical Officer of Health answers the charge with considerable spirit. The far-away-stander will probably conclude that the conditions as presented do seem confused even if they are something less than scandalous.

ANON. Tuberculosis and the National Health Service. *Brit. M. J.* 4693:1387 (Dec. 16), 1950 (and) HOEY, R. Prevention of Tuberculosis. *M. Officer* 85, 2:15 (Jan. 13), 1951.

Essence of Things—Though old-fashioned bacteriology is becoming something of a step-child in these blooming days of viruses and hormones and things of high physiologic concern, you may still be intrigued by this revealing study of what bacterial flagella are made of. You will surely be intrigued by the magnificent electron micrographs of *P. vulgaris* flagella.

ASTBURY, W. T. Flagella. *Sci. Am.* 184, 1:21 (Jan.), 1951.

Something Can Be Done — Summarized here are the several approaches that may be made to a program for the control of chronic disease through early diagnosis, treatment, and rehabilitation. Chronic disease, say the writers, is the chief public health problem of the day.

BRIGHTMAN, I. J., AND HILLEBOE, H. E. A Joint Attack upon Chronic Disease. *Pub. Health Nursing* 43, 1:21 (Jan.), 1951.

Were You One of the 5000? — If not, here you will find a comprehensive report of the recent Midcentury White House Conference. The sixty-eight recommendations approved at the final session are mercifully condensed. (More papers are to come.)

CLOSE, K., *et al.* Youth in Today's World (and related papers). *Survey* 87, 1:17 (Jan.), 1951.

The New Problem of the Old — Only the last words of a speech full of pithy comment (by the Chief Medical Officer of Scotland) can be quoted here. They are these: "To postpone the hour of death is not enough, we must postpone the onset of old age."

DAVIDSON, A. The Needs of Elderly Persons. *M. Officer* 85, 1:5 (Jan. 6), 1951.

Not What, But How—Though the public health aspects of this delightful review of a half century of medical progress must be familiar to every health worker above the grade of receptionist, most of us should find the paper as useful as it is entertaining. The method used by this historian to measure progress may have some applicability for reviewers of our more limited field.

FITZ, R. The Science and the Art. *New England J. Med.* 244, 1:17 (Jan. 4), 1951.

You'll Enjoy This — Here in one capsule you will find: (a) good writing, (b) measured reporting, (c) welcomed information. Even though I had recently been educated on this subject at our St. Louis meeting, I still learned

a lot. The subject—by the way—is smoke prevention.

HEILBRONER, R. L. What Goes up the Chimney? *Harpers Magazine* 202, 1208:61 (Jan.), 1951.

The Great Darkness—Two Prevention of Blindness people tell the ophthalmologists what the National Society is doing and wants to do. Your help is needed, and the job deserves your help, so this seems like required reading.

LANCASTER, W. B., AND FOOTE, F. M. The Battle against Blindness. *J.A.M.A.* 145, 1:26 (Jan. 6), 1951.

More Colds?—Children are absent from school because of illness more often now-a-days than they were two decades ago—in New Haven, that is—but they don't stay sick so long. Maybe it isn't a case of more colds and sore throats but better parental attitudes toward respiratory infections.

LINDE, J. I., *et al.* Causes of Absenteeism in New Haven Schools. *Pub. Health Rep.* 65, 52:1737 (Dec. 29), 1950.

About Health Officer Shortages—The reasons more physicians do not go into public health administration, are explored for the benefit of the visiting medicos. Most of the answers are pretty well known to health workers. This reference is for the record: in case you want to talk about the same topic sometime.

NEUPERT, A. N. Does the Health Officer Have Status? *J.A.M.A.* 144, 18:1537 (Dec. 30), 1950.

Virus with a Tail — Magnified 122,500 times, the virus of Newcastle disease is shown sporting a fine long tail. You are likely to hear a lot about this disease in the future, so you may want to see what the bug looks like—even though, for you, the whole paper may be in the category of curiosa.

REAGAN, R. L., *et al.* Electron Micrographs of Newcastle Disease Virus Propagated in the Cave Bat. *J. Bact.* 61, 1:37 (Jan.), 1951.

Progress Reported — Research has cleared up most of the confusions about poliomyelitis that persisted up to a decade ago, asserts the writer of this useful review paper. This fragment of one of his sentences you must read: "... the most effective protection against paralytic poliomyelitis is to be born of a polio-resistant mother, and to be exposed to the virus frequently from early infancy through maturity."

WEAVER, H. M. Epidemic Poliomyelitis. *New England J. Med.* 243, 26:1019 (Dec. 28), 1950.

Motion Picture Film Reviews

HOMER N. CALVER, *Film Review Editor*

Miracle of Life. Black and white. With sound. 11 minutes. Produced by Almanac Films, 516 Fifth Ave., New York 18, N. Y. For purchase $45; for rent, about $2.

This popular picturization of life's beginnings is one of the films in the series of 20 in John Kieran's Kaleidoscope. As so often happens in the entertainment field of the motion picture industry, this film covers much less than the title indicates. It is limited to the very early stages of cell development, cell division, egg growth, insemination, and life forms of lower animals.

John Kieran is informal and witty in his running comment. He is entertaining, but too often talks about something which the audience does not see on the screen. There are no in-between titles and some of the technical names are not printed in the pictures. School audiences would need careful subject preparation in order to get something out of the film. Senior science students would profit most.

The photography is excellent and there is a quite dramatic opening demonstrating life's eternal fight for survival. Experimental work which analyzes the cause of development is shown beautifully by operating with thin wire the first cleavage division, thus creating two complete, though half-sized individuals. Unfortunately, there is no reference to development of the human egg nor to the phenomenon of twinning.

It is recommended highly for senior high school and college levels and might also be useful for educational television programs. BRUNO GEBHARD

Welton. Color and sound. 30 minutes. Produced by Campus Studios, University of Washington for the Washington State Department of Health. For purchase or rent, write Instructional Materials Center, University of Washington, Seattle. Price to purchase, $190. Rental, $3.25.

Here is an interesting and especially attractive film designed to tell the story of the effectiveness of a full-time local health unit to citizen audiences. The film contrasts conditions in a town without an adequate local health service with another area which has a modern local health unit adequately staffed and financed. Most of the dialogue is in the voice of a county commissioner who has to learn the hard way that tax support for public health services can be won if wise tactics are used. Some of these tactics are demonstrated in the film. The language is interesting, vivid, and understandable.

An epidemic of diphtheria supplies the incident around which the film is developed. The method of eliminating diphtheria by sustained control methods is clearly outlined. The atmosphere is that of a modern health department and public health workers will feel quite at home.

While the film was developed for the State of Washington and is slightly provincial in this respect, the scenery is so beautiful that the film is a distinct pleasure from this aspect alone. It is recommended to public health workers and will be found of particular use for groups of public officials as well as other citizens. ROSCOE P. KANDLE

Problems of Rheumatoid Arthritis. An educational film on rheumatoid arthritis with emphasis on treatment by cortisone and ACTH. Color. Sound. 27 minutes. 16 mm. Produced by the Medical Film Guild for the Arthritis and Rheumatism Foundation. Available on loan free from the state chapters of the Foundation, or from its National Office, 537 Fifth Avenue, New York 17, N. Y. For arrangements regarding purchase, consult the Foundation.

With a combination of animation and live action this film portrays the problems presented by rheumatoid arthritis as a disease entity. It also traces the history of the treatment of the disease including the development and use of cortisone and ACTH. A unique feature is the use of double exposure to depict the "before and after" of treatment with these new hormone substances.

The film is essentially an illustrated lecture in which, however, the commentary is on occasion disassociated from the picture on the screen. Hence the smooth continuity and well rounded presentation one expects from a good motion picture is lacking. It suffers too from its attempt to be both a clinical film for the physician and a propaganda vehicle for the layman. In fact the film could with advantage be divided into two separate productions, one for professional, the other for lay audiences.

The reviewer found the large volume of statistical material presented confusing and at times difficult to follow. Elimination of some of the statistical data and simplification of the remainder would have made for greater effectiveness.

From a technical viewpoint the film would deserve a "good" rating with respect to the quality of its sound, photography, and animation. Some of the footage showing the first patients treated with cortisone and ACTH has definite historical value.

GRANVILLE W. LARIMORE

RECENT MOTION PICTURE RELEASES

(All 16 mm., black and white, with sound, unless indicated otherwise.)

A Tale of the Twin Cities. Shows how coöperation between communities can prevent stream pollution. Has color and sound. Runs 20 minutes. Produced by Audio-Visual Education Dept. of the University of Minnesota for the Minneapolis-St. Paul Sanitary District. For purchase from the producer at $155. For rental at $2.40, address requests to Audio-Visual Extension Service of the University of Minnesota, Minneapolis.

Conditioned Reflexes. Reviews some of the work of Ivan Pavlov and reproduces some of his animal experiments. Available in 35 mm. as well as 16. Produced by Moscow Popular Science Film Studio. Distributed in the United States by Brandon Films, Inc., 1700 Broadway, New York 19, N. Y. Purchase price $90. Rental, $5.

Sleep for Health. The place of sleep in a general program of good health. For primary and elementary school children. Runs 10 minutes. Produced by Encyclopaedia Britannica Films, Wilmette, Ill. Purchase price, $70, less 10 per cent discount. For rental, consult local film libraries.

Influenza. Two new films on this subject have been released by the Communicable Disease Center of the Public Health Service, 50 Seventh St., Atlanta, Ga., from whom they may be borrowed free. They are:

Epidemiology of Influenza. This is a documentary type film showing the historical significance of influenza, the clinical picture, the behavior and periodicity of influenza and the program of the World Health Organization with regard to the disease. Runs 12½ minutes.

Laboratory Diagnosis of Influenza. The film gives the step by step procedure in laboratory diagnosis, such as collection of nose and throat washings and acute and convalescent blood specimens from the patient; isolation of the virus by means of intra-amniotic inoculation of chick embryos with the nose and throat washing inoculum and subsequent harvesting of the amniotic fluid; rough agglutination tests to determine the presence of the virus, followed by titration to determine its quantity; identification of the strain of the virus by hemagglutination tests with immune sera, and the establishment of antibody content from the acute and convalescent blood specimens. Runs 13 minutes.

ASSOCIATION NEWS

SEVENTY-NINTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
SAN FRANCISCO, CALIF., OCTOBER 29–NOVEMBER 2, 1951

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Mirza Ali Ahmad, M.D., D.P.H., 100 Aya Sadek Road, P. O. Ramna, Dacca, Pakistan, District Health Officer, Pakistan Government

Willard G. Beattie, M.D., Professional Bldg., Ferndale 20, Mich., Health Officer, City of Ferndale

Joshua C. Bray, M.D., Sheppard Air Force Base, Texas, Chief, Communicable Diseases

Ganga P. Chakravarti, M.B., D.P.H., 5 Peabody St., Boston 15, Mass., Student, Harvard School of Public Health

Stephen P. Coates, M.D., 328 Main St., Suffield, Conn., Health Officer

C. Clyde Coffindaffer, M.D., Romney, W. Va., Health Director District 5

J. M. Coram, M.D., Box 910, Beckley, W. Va., Health Officer

H. Anthon Dahlsrud, M.D., 215 Fifth St., Colusa, Calif., Health Officer, Colusa County

Oscar Davis, M.D., 1048 E. Orange St., Lancaster, Pa., Medical Director, Lancaster County (Pa.) Dept. of Health

Major Noel W. Ellis, The Salvation Army, 3329 Eoff St., Wheeling, W. Va., Commanding Officer

Pauline C. Jette, City Hall Annex, Chicopee, Mass., Agent, Board of Health, Dept. of Public Health

George W. Miller, M.D., D.P.H., 2001 Connecticut Ave., N.W., Washington 8, D. C., Technical Assistance Officer, W.H.O.

Winder L. Porter, M.D., M.P.H., 225 North DuPont St., Wilmington, Dela., Clinician, Consultant, Delaware State Board of Health

Clarence G. Salsbury, M.D., 502 W. Wilshire Drive, Phoenix, Ariz., Chief, Bureau of Preventive Medical Services, State Health Dept.

Myrtle Lee Smith, M.D., 302 N. Church St., Livingston, Tenn., Senior Medical Officer, Overton-Fentress-Pickett District Health Dept.

Herman F. Strongin, M.D., M.P.H., City Hall, North Adams, Mass., Director of Health, City Health Dept.

A. Kirsti Kannisto Valanne, M.D., Laaninlaakarin, Toimisto, Oulu, Finland, Assistant Provincial Health Officer, Oulu Province

Laboratory Section

Elbert S. Churchill, M.S., 306 E. Front St., Gravel Ledge, Mich., Dairy Bacteriologist, Michigan State College

Nancy L. Davis, M.A., 774 North First, San Jose, Calif., Director of Laboratory, Santa Clara County Health Dept.

L. W. Engels, Univ. Campus, State Public Health Laboratory, Albuquerque, N. M., Senior Bacteriologist, Serologist

Eli Gardiner, Ph.D., 71–47 Austin St., Forest Hills, N. Y., Owner-Director, Gardiner Clinical Laboratory

L. B. Garrett, P. O. Box 622, Jefferson City, Mo., Laboratory Technician, State Division of Health Laboratory

Robert W. Huntington, Jr., M.D., Kern General Hospital, Bakersfield, Calif., Pathologist, County of Kern

Max E. Jarvis, 1075 N. Telegraph, Contagious Hospital, Pontiac, Mich., Bacteriologist, Oakland County Health Dept.

Carl M. Johnson, M.D., Sc.D., P. O. Box 1196, Ancon, Canal Zone, Chief of Parasitology, Board of Health Laboratory

Joseph W. Joy, 1358 N. Sedgwick, Chicago 10, Ill., Immunologist, Bureau of Biologic Products, State Dept. of Public Health

Elsa King, 209 Chestnut St., Cambridge, Mass., Bacteriologist, Mass. Dept. of Public Health

T. B. Meriwany, M.S., P. O. Box 982, Hammond, Ind., Bacteriologist and Chemist, Board of Health

Jean Puffer, 2853 Shasta Road, Berkeley, Calif., Senior Bacteriologist, State Dept. of Public Health

Franklin W. Rumney, 15 Clinton St., Redwood

City, Calif., Public Health Bacteriologist, Dept. of Public Health & Welfare of San Mateo County

Jose Sosa-Martinez, Univ. of Calif., International House, Berkeley 4, Calif., Trainee under a Fellowship of the USPHS

Irvine A. Striffler, The Nestle Co., Inc., Marysville, Ohio, Director of Control Laboratory

Grace A. Teninga, M.S., 15 Fox St., Aurora, Ill., Bacteriologist and Chemist, City of Aurora

Paul C. Thivierge, 2401 E. Fourth St., Royal Oak, Mich., Bacteriologist, Oakland County Health Dept.

Julian M. Weaver, P. O. Box 737, Froehling & Robertson, Inc., Richmond, Va., Chief Chemist and Director of Dept. of Bact.

Alfred J. Weil, M.D., Bronx Hospital, Fulton at 169th, New York 56, N. Y., Director, Dept. of Bacteriology

Statistics Section

George N. Barker, 510 Denbury Ave., Ottawa, Ont., Canada, Chief, Institutions Section, Dominion Bureau of Statistics

Bernard Ferber, 17 South Hawk St., Albany, N. Y., Statistician, New York State Dept. of Health

Elsie M. Morck, 4016 Interlake Ave., Seattle, Wash., Chief Clerk, State Health Dept.

Sara B. Pearson, USPHS FS Bldg., South, Div. of Tb., Washington 25, D. C., Public Health Adviser, Specialist

Engineering Section

Aleck Alexander, M.S., 1602 Bannock St., Boise, Ida., Public Health Engineer, Idaho Dept. of Public Health

William M. Cox, 3718 Ave. P. Apt. #1, Galveston, Tex., Supervisor, Mosquito and Fly Control

Zadok D. Harrison, Chiriqui Land Co., Puerto Armuelles, Panama, Assistant General Sanitary Inspector, United Fruit Co.

Frederick F. Heisel, M.P.H., Box 262, Dept. of Health, Fergus Falls, Minn., District Public Health Engineer, Health Dist. #7, State Dept. of Public Health

Lester H. Hokom, 2147 Emerson, Berkeley, Calif., Consulting Public Health Sanitarian, State Health Dept.

A. A. M. Obdaidul Hoque, Eden Bldg., Shed 29, P. O. Ramna, Dacca, Pakistan, Assistant Engineer, Health Dept., Government of Pakistan

Edmund J. Laubusch, Mass. Institute of Technology, Room 1–270, Cambridge 39, Mass., Teaching Assistant in Sanitary Engineering

Roy O. McCaldin, 50–7th St., N.E., C.D.C., Atlanta, Ga., Junior Assistant Sanitary Engineer, USPHS

Fred A. Nichols, 69 W. Washington St., Room 200, Chicago, Ill., Sanitary Inspector, USPHS

Joseph A. Ross, 255 E. Elm St., Oxnard, Calif., Mechanical Engineer (Sanitary) U. S. Navy Dept. Public Works

Wilbert E. Spies, 310 Ludlow Bldg., Dayton 2, Ohio, District Engineer, Ohio Dept. of Health

Vern W. Tenney, M.S., Sanitation Division, District Public Works, Federal Office Bldg., San Francisco 2, Calif., Sanitary Engineer

Industrial Hygiene Section

Franklin W. Church, M.S., 464 S. Gaylord, Denver, Colo., Chief, Section Industrial Hygiene and Toxicology, Univ. of Colorado, Medical Center

Robert J. Furr, 808 N. Marsalis, Dallas, Tex. Director, Texas Safety Service

Howard Hansen, M.D., Esso Standard Oil Co., P. O. Box 551, Baton Rouge 1, La., Medical Director

John L. Mayes, 105 Marvin Hall, Univ. of Kansas, Lawrence, Kan., Sanitary Engineer (Industrial Hygiene Section) State Board of Health

Mary P. Wysor, R.N., Box 573, Keystone, W. Va., Industrial Nursing, Eastern Gas & Fuel Associates

Food and Nutrition Section

Archie E. Armstrong, M.S., American Institute of Baking, 400 E. Ontario St., Chicago 11, Ill., Sanitarian

Emma F. Clinkscales, M.S., Gilbreath Mill, Greer, S. C., Nutrition Consultant, State Board of Health

Minerva Harbage, M.S., R. R. 1, West Jefferson, Ohio, Special Nutrition Consultant, Ohio Dept. of Health

Russell C. Plymale, 2962 Hughes St., Huntington, W. Va., Supt. of Milk, Board of Health

Ellen H. Semrow, 75 E. Wacker Drive, Room 1702, Chicago 1, Ill., Director, Consumer Service Dept., National Assn. of Margarine Mfgrs.

Janet M. Wardlaw, M.S., Wayne County Health Dept., Henry Ruff Rd., Eloise, Mich., Nutrition Consultant, State Dept. of Health

Maternal and Child Health Section

Viola V. Startzman, M.D., 421 N. Market St., Wooster, Ohio, Physician, Pediatrics

Barbara Ann Wood, M.D., 64 Benton St., Rochester, N. Y., School Physician, Rochester Health Bureau

Public Health Education Section

Jay M. Akin, 314 14th St., Denver, Colo., Exec. Secy., Colorado Heart Assn.

Rita R. Chazan, 86 Broadway, Newburgh,

N. Y., Exec. Secy., Newburg Public Health & Tuberculosis Assn.

Robert H. Conn, M.A., Box 416, 4550 Central Ave., N.E., Minneapolis, Minn., Student, Univ. of Minnesota, School of Public Health

Margaret Devitt, 34a Anderson St., Boston, Mass., Medical Technician, Massachusetts Dept. of Public Health

Lillian Edwards, M.P.H., 328 N. 26th St., Baton Rouge, La., Public Health Educator, East Baton Rouge Parish Health Unit

Hamilton H. Hake, 3100 Overlook Drive, Nashville, Tenn., Inventory Clerk, State Health Dept.

William J. Hixon, M.S., 1806 Maple Ave., Evanston, Ill., Health Educator, Evanston Health Dept.

Jacob John, M.S.P.H., Karippacheril House, Chenganoor, Travancore, India, Student of Public Health, Indiana University

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William E. Lawrence, Boy Scouts of America, 2 Park Ave., New York, N. Y., Director of Health and Safety

Jay E. McCarthy, M.P.H., 45 Second St., San Francisco 5, Calif., Director of Health Education, California Tuberculosis and Health Assn.

Marjorie A. McKnight, M.P.H., County Health Dept., Spartanburg, S. C., Health Educator

Pamela S. Olmsted, 904–16th North, Seattle 2, Wash., Student, Univ. of Washington

Dorothy Oshlag, Communication Materials Center, 413 W. 117th St., New York 27, N. Y., Production Manager, Division of Columbia Univ.

Loyd W. Rowland, Ph.D., 816 Hibernia Bldg., New Orleans 12, La., Director, Louisiana Society for Mental Health

Alfred L. Scherzer, M.S.P.H., 169 Van Houten St., P. O. Box 1740, Paterson, N. J., Health Educator, Passaic County Tuberculosis and Health Assn.

Sarah J. Schmidt, M.P.H., Fenrock Farm, Storrs, Conn., Assoc. in Health Education, Connecticut Tuberculosis Assn.

Donald Tao, M.A., 519 W. 123rd St., New York 27, N. Y., Student, Columbia Univ., Teachers College

C. F. von Salzen, M.D., 200 Retreat Ave., Hartford 6, Conn., Acting Psychiatrist-in-Chief, Institute of Living

Public Health Nursing Section

Margaret Arbuckle, R.N., Box 291, Lewisburg, W. Va., Local Supervisor, State Health Dept.

Margaret P. Armstrong, 107 N. Church St., East Point, Ga., Area Supervisor, Public Health Nursing, Fulton County Health Dept.

Verle Hambleton, 1427 W. 62nd, Seattle, Wash., Public Health Nurse, Seattle-King County Dept. of Public Health

Faye M. Hively, R.N., 107 Myrlice Court, Vandercook Lake, Jackson, Mich., County Nurse, County Board of Supervisors

Frances E. Moehl, 423 Chalstrom Bldg., Joliet, Ill., Exec. Secy., Will County Tuberculosis Assn.

Virginia E. Moore, 224 Central Ave., S.W., Atlanta, Ga., Public Health Nursing Supervisor, Tuberculosis Division, Atlanta City Health Dept.

Edith F. Myers, R.N., 2025 Second St., Cuyahoga Falls, Ohio, Nursing Consultant, State Dept. of Health

Shirley J. Reines, 636 Faile St., New York 29, N. Y., Staff Nurse, Dept. of Health

Jeanette A. Wooding, R.N., 168 Harcourt Drive, Akron, Ohio, Director of Nursing, Summit County Health Dept.

Epidemiology Section

Herman H. Gray, M.D., 50 Seventh St., N.E., Atlanta 5, Ga., Leprosy Epidemiologist, Communicable Disease Center

Mohamed Abdel Kader, M.B., 55 Shattuck St., Boston, Mass., Asst. Director of Rural Health Section, Dakahlia, Egypt

Mary R. Lester, R.N., M.P.H., 2010 Belvedere Drive, Jackson, Miss., Nurse Epidemiologist, USPHS (Regular Corps, Commissioned Officers)

Major Herbert L. Ley, Jr., M.C., 101 Sherman Road, Chestnut Hill 67, Mass., Medical Officer, U. S. Army Medical Corps

Richard A. Prindle, M.D., 695 Huntington Ave., Boston 15, Mass., Research Fellow in Epidemiology, Harvard School of Public Health

Meropi Violaki, M.D., M.P.H., State Health Dept. of Attica, 46 Patision St., Athens, Greece, Chief of Public Health Section

School Health Section

Marion R. Farnham, Box 89, Norwich, L. I., N. Y., School Nurse Teacher, Jericho School

Ima Lee Glasson, R.N., 515 Fisher, Corpus Christi, Tex., Supervisor of School Nurses, Corpus Christi Independent School

Dorothy Lynch, R.N., 5757 Neckel, Dearborn, Mich., Supervising Nurse, Dearborn Public Schools

Miriam E. Marino, 111–20 128th St., South Ozone Park, N. Y., School Nurse, Valley Stream, N. Y.

Gertrude E. Wilhelm, R.N., 415 E. Seventh St., Dixon, Ill., School Nurse, Dixon Schools

Dental Health Section

Michael R. Moran, M.A., 804 East 81st St., Chicago 19, Ill., Health Educator, American Dental Assn.

Lewis F. Rees, D.D.S., 2975 Piedmont Ave., Berkeley, Calif., Dentist, California State Dept. of Public Health

Medical Care Section

Mario Enrique Aparicio, M.D., 600 W. 168th St., School of Public Health, New York, N. Y., Physician, Venereal Diseases Clinic, Servicio Cooperativo Interamericano de Salud Publica

Thomas B. Fitzpatrick, 5727 Elwood St., Pittsburgh 32, Pa., Director, Out-Patient Dept., The Montefiore Hospital

C. H. Francis, M.D., 49 Fourth St., San Francisco 3, Calif., Area Medical Director, Veterans Administration

Helen L. Johnston, 1900 "S" St., N.W., Washington 9, D. C., Health Economist, USPHS

Henry A. Korda, M.D., Pelican Rapids, Minn., Physician and Surgeon, Hospital Administrator

Raymond J. Reynolds, 333 Cedar St., New Haven 11, Conn., Hospital Administration Student, Yale Univ.

Anne Waybur, 31 Tamalpais Road, Berkeley 8, Calif., Research in Medical Care Program, International Ladies' Garment Workers' Union

Unaffiliated

Margaret J. Albrink, M.D., 28 Green Gardens Court, East Haven, Conn., Student, Yale Univ., School of Medicine

Einor H. Christopherson, M.D., 344 Central Ave., Wilmette, Ill., Exec. Secy., American Academy of Pediatrics

Thomas F. Clougherty, M.S., 1860 Clydesdale Plaza, N.W., Washington, D. C., Sanitarian, Montgomery County Health Dept.

Elias J. Marsh, M.D., State Dept. of Health, Station A, Drawer K, Hartford, Conn., Director, Bureau of Mental Hygiene

Clarence H. Moore, World Health Organization, Palais des Nations, Geneva, Switzerland, Administrative Officer, Advisory Services to Governments

Charles V. Netz, Ph.D., 4728 Aldrich Ave. S., Minneapolis 9, Minn., Professor, Dept. of Pharmacy, Univ. of Minnesota

Walter J. Sczawinski, Box 37, College, Alaska, Student, Univ. of Alaska

James M. A. Weiss, M.D., 167 Diamond St., New Haven, Conn., Fellow, USPHS, in Public Health (Mental Health), Yale Univ., School of Medicine

A.P.H.A. membership application blank on page XXXVII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Public Health Physician for Regional Office, State Health Department; salary up to $8,712; excellent Civil Service and Retirement System.

Public Health Physician for Assistant Chief, Division of Local Health Services, State Department of Public Health. Salary range $6,900–$8,712; may start above minimum.

Public Health Physician for Champaign-Urbana Public Health District. Salary range $7,500–$9,000. Competitive examination planned for summer of 1951.

For information on above positions, write Roland R. Cross, M.D., State Department of Public Health, Springfield, Ill.

Public Health Physician as Health Officer of a newly established county health department. Salary range $7,200–$9,000. Qualified health officer may start above minimum. Write: G. Alzeno, D.D.S., President, JoDaviess County Board of Health, Stockton, Ill.

Public Health Physician as Medical Director of Bi-County Health Department. Important public health job to be done. Salary $7,000. Apply: Dr. Emmett J. Gillespie, Secretary, Alexander-Pulaski Bi-County Board of Health, Cairo, Ill.

Health Officer—full-time, to direct and develop public health program in East Hartford, Conn. Salary $7,200 plus cost of living adjustment and car allowance. Write: John N. Gallivan, M.D., 740 Main Street, East Hartford 8, Conn.

Graduate Engineer with two years experience in industrial hygiene engineering. For information, write: Oregon State Civil Service Commission, 102 Public Service Building, Salem, Ore.

Associate Engineer. State Water Commission, West Virginia, has opening for Sanitary, Public Health, or Chemical Engineer; experience in industrial waste treatment desirable. Starting salary $5,000 plus expenses. Give details of education and experience in first letter. Write: Robert F. Rocheleau, State Water Commission, 212 California Avenue, Charleston 1, W. Va.

Associate Professor of Health Education for woman with doctor's degree and M.P.H. Must have had successful teaching experience; prefer candidate under 40 years of age. Position available September, 1951, teaching undergraduate and graduate courses to professional students. Apply and send credentials to: Department of Physical Education for Women, Urbana, Ill.

Dietitian. Degree from college or university of recognized standing with major in institutional management and/or nutrition; completed dietary internship from an American Dietetics Association approved courses required. Salary range: $260–$310. Merit System status.

Medical Social Consultant. Completion of a two years course in medical social work; two years experience in the practice of social case work, 1 year of which must have been in a hospital, clinic social service department, or in a public medical care program. Salary range $315–$375. Merit System status.

For complete information on above positions, write: J. E. Waddill, Personnel Officer, State Department of Public Health, Box 640, Boise, Ida.

Medical Director for Clark County Health Department. Generalized program. Public health experience necessary. Adequate salary. Write: Dr. L. D. Bower, 332 Spring Street, Jeffersonville, Ind.

Junior Public Health Nurses — $250–$310 per month with travel, and **Senior Public Health Nurses** — $275–$350 per month, with Merit System, State pension system. Knowledge of Spanish language useful. Write: Dr. Fred O. Tonney, Medical Director, Cameron County Health Unit, San Benito, Tex.

Staff Public Health Nurse for large university town. Salary range $260–$305 per month; automatic increases; cost-of-living adjustments semi-annually; adequate mileage allowance; state-wide retirement program. Applications will be accepted until the needs of the service are filled. Write: Personnel Division, City Hall, Madison 3, Wis.

Director for Visiting Nurse Association in suburb of Chicago; degree in public health nursing and at least five years experience required; 40 hour week, small staff, NOPHN standards and salary schedule maintained. For further information, write: Mrs. Alden Kelley, 2122 Orrington Avenue, Evanston, Ill.

Public Health Nurses — Civil Service positions open in the Detroit area. $3,568–$3,928 (40 hour week); employees receive annual paid vacation, paid sick leave, automatic annual salary increases, and participate in liberal retirement plan. For application or further information write: Wayne County Civil Service Commission, 2200 Cadillac Tower, Detroit 26, Mich.

District Health Officer for a district of approximately 250,000 people with training center. Salary $6,600–$7,500 depending upon training and experience, automobile allowance, $1,000 yearly. Write: Cook County Department of Public Health, 737 So. Wolcott Avenue, Chicago 12, Ill.

Tuberculosis Director. Three years experience tuberculosis control; graduate training in public health preferable. Salary $9,000 plus travel expense; Civil Service; Retirement.

Public Health Physician for Director, Eye Conservation program; background in ophthalmology desirable. Starting salary $9,000 plus travel expenses. Civil Service; Retirement.

For information on above positions, write: Harold M. Erickson, M.D., State Board of Health, 1022 S. W. 11th Avenue, Portland 5, Ore.

Director of Local Health (Public Health Physician), Nebraska State Department of Health; salary range $6,420–$8,340—may appoint above minimum; expenses allowed while on field assignments. Address: Director of Health, State Capitol Building, Lincoln, Neb.

POSITIONS WANTED

B.S. degree in bacteriology, chemistry and parasitology. Seven years experience in public health diagnostic bacteriology; clinical laboratory work including blood bank; experience in commercial industrial bacteriology and mycology. Desires position in medical research, medical diagnostic, or public health work, preferably bacteriological or parasitological. No call work. East preferred. Female. Write: **Box L-16,** Employment Service, A.P.H.A.

Public Health Physician — B.A., M.S.P.H., M.D., Teacher's certificate, leading universities; several years experience in hospital or medical administration, teaching or health department. Write: **Box C-19,** Employment Service, A.P.H.A.

Public Health Nutritionist—B.S., M.S., (qualified) three years public health experience, official agency, including teaching and writing. Challenging position of greater importance than location. Write **Box N-4,** Employment Service, A.P.H.A.

Bacteriologist—Ph.D., trained in public health, medical and industrial bacteriology and mycology, also immunology and serology. Degree granted 1950 Germany. Would like opportunity in field of public health, antibiotics, or clinical medicine. Write **Box L-17,** Employment Service, A.P.H.A.

Announcements

Kenfield Memorial Scholarship

The American Cancer Society announces the availability of The Kenfield Memorial Scholarship for 1951. The amount is $100 and applicants must be prospective teachers of lipreading to the hard of hearing. Those already teaching lipreading cannot be considered. Applications must be filed between March 1 and May 1, 1951, with: Miss Rose V. Feilbach, Chairman Teachers' Committee, 1157 North Columbus Street, Arlington, Va.

Nation-wide Examination for Senior Supervisor of School Medical Service

The New York State Department of Civil Service is holding a nation-wide examination for Senior Supervisor of School Medical Service (General) on April 14, 1951. This position is in the Division of Pupil Personnel Service of the New York State Education Department at Albany. The entrance salary is $5,650. In addition, there are five annual salary increases up to the maximum of $6,910.
Detailed examination announcements and application blanks can be obtained by writing to the New York State Department of Civil Service, 39 Columbia Street, Albany, N. Y. The application fee is $5.

Openings Abroad for Public Health Doctors

The Civilian Personnel Branch of the Army Surgeon General's Office announces vacancies for one Medical Officer (Director of Public Health and Welfare) in Okinawa and nine Public Health Officers in Japan. All of these positions have to do with the care of civilian population. Applicants must be Doctors of Medicine with public health and welfare experience. There is no age limit. The opening in Okinawa calls for a

GS rating 15 and pays $10,000 per year plus 25 per cent post differential, a total of $12,500. The openings in Japan call for a GS rating 13 and pay $7,600 per year, plus free quarters which include furniture and maid service.

Doctors wishing to make application for these positions or further information concerning them should write to Civilian Personnel Branch, Army Surgeon General's Office, Main Navy Building, Washington 25, D. C.

Examinations for Milk Sanitarians and Sanitary Engineers

The State Civil Service Commission has announced open-competitive examinations for Milk Sanitarians and Sanitary Engineers for employment with the State of Illinois. Final date to apply is **March 23.** State residence is necessary for Milk Sanitarian I and II and Sanitary Engineer II, but not for Sanitary Engineer I. Desirable qualifications for Milk Sanitarian include college graduation with a major in dairy husbandry, sanitary engineering, bacteriology, or chemistry. Sanitary Engineers should be college graduates with majors in sanitary or public health engineering. Experience in sanitary engineering may be substituted for the college work. Salary ranges from $190 to $319 for Milk Sanitarians and from $230 to $380 for Sanitary Engineers.

Further information and application forms may be obtained from the Illinois Civil Service Commission, Armory Building, Springfield, Ill.

Advertisement

All communications should be sent to Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Health officer, college town, 60,000, Midwest. (b) Chief Medical Officer; interesting appointment; South America. (c) Director, student health department; one of country's leading universities. (d) Assistant director, industrial hygiene; state health department; East. **PH3-1.**

WANTED—(a) Associate professor in health education; preferably woman, 30 to 40, with doctor's degree in health education, successful teaching experience; duties include teaching graduate and undergraduate courses in health education; state university. (b) Health coördinator; duties include college teaching; college town, Midwest. (c) Industrial hygienist trained in chemical engineering; southern plant of large industrial company. **PH3-2.**

WANTED—PUBLIC HEALTH NURSES FOR FOLLOWING: (a) Senior public health nurse; generalized program; outside United States. (b) Student health and recreational director; school of nursing, large general hospital; East. (c) Chief nurse, qualified to direct staff of eight field nurses; health department, public schools; town of 100,000, Midwest. (d) Public health nursing administrator to serve as consultant on state-wide basis; headquarters, university medical center; Pacific Coast. (e) Director, visiting nurse association; staff of ten; town of 100,000, Midwest. (f) Public health coördinator, serve as assistant professor of nursing; collegiate nursing program; coeducational institution, 2,200 students; East. (g) School nurse; residential town near Chicago. **PH3-3.**

Wanted—Situations for the Following Candidates

(a) HEALTH EDUCATOR; M.A. (Educational Psychology), Columbia; M.P.H. (Education) Harvard; six years, supervisor health education, county health department; four years, director, health education, state tuberculosis association. (b) INDUSTRIAL HYGIENE ENGINEER; B.S., M.S. degrees; four years, food chemist and inspector, city health department; five years, director, bureau of industrial hygiene, state health department. (c) PUBLIC HEALTH NURSING ADMINISTRATOR; professionally trained, university hospital; B.S. (Public Health Nursing), M.S. (Health Education); three years, instructor, Hygiene and school nurse, young women's college; two years, assistant, dean of women, Eastern college; six years, supervisor of health education and school nursing, metropolitan department of health. (d) PUBLIC HEALTH PHYSICIAN; M.D., M.P.H., eastern universities; five years, chief health officer, department of nearly one hundred personnel including twelve full-time public health physicians.

NEWS FROM THE FIELD

EASTERN STATES CONFERENCE ON LOCAL HEALTH SERVICES AND CIVIL DEFENSE

The fifth in a series of regional conferences on local health services was held in Princeton, N. J., January 21–23. This one differed from the four earlier regional conferences in the Middle West, the Great Plains, and the Mountain States in two significant ways. Because of what has happened to the world since the last regional conference in the Great Plains States in the spring of 1949, the health aspect of civil defense was an important part of this most recent conference.

The second difference was that this conference was initiated and organized by one of the participating states, New Jersey. The Governor of New Jersey invited the governors of the other states —Delaware, Massachusetts, New York, and Pennsylvania—to appoint delegates to such a conference. Previous conferences had been arranged by the National Health Council on invitation of the states involved.

The conference was inspired by the New Jersey Governor's Committee on Local Health Administration, whose chairman is a former Assemblywoman, Mrs. Gloanna MacCarthy. This committee has been studying the state's local health services and has written a permissive bill, now in the New Jersey legislature, for consolidated town or county health districts. The conference chairman was Mrs. Frances Mancusi-Ungaro, who is chairman of a subcommittee on meetings of the Governor's committee.

This most recent Princeton conference was attended by about 125 delegates, the number from the various states ranging from 7 from Delaware, the smallest state, to some 35 from New Jersey, the host state. Altogether, the 5 states represent nearly one-fourth of the population of continental United States. This was essentially a citizens' conference with such organizations represented as Rotary International, Junior Chamber of Commerce, State Taxpayers' Association, County Board of Freeholders, State Grange, Farm Bureau, C.I.O., Council of Churches, Congress of Parents and Teachers, Federation of Women's Clubs, Federation of Business and Professional Women's Clubs, League of Women Voters, as well as voluntary and official health agencies.

As in earlier instances, this was a work conference using the group-discussion audience-participation techniques. There were no planned addresses except a short talk at a dinner meeting by Governor Driscoll of New Jersey in the form of a welcome to the conference, and an address at the same dinner by Ernest L. Stebbins, M.D., director of the Johns Hopkins School of Hygiene and Public Health and president of the National Health Council. He emphasized health protection as a war need by suggesting that the brain and muscle of the people of the country should be placed on a level at least equal to that of petroleum, steel, copper, or other products as resources of war. The struggle for survival that may be ahead is not a job for the ill, the malnourished, the physically or mentally disabled.

There was general agreement that organized full-time local health services were essential elements in the civil defense program of a community. Without such services an adequate civil defense health program cannot be established. In their absence a community could only

improvise by borrowing from the state health department, training of large bodies of volunteers, etc.

Two formal resolutions were adopted by the conference as follows:

CIVIL DEFENSE AND LOCAL HEALTH SERVICES

WHEREAS, in the interest of civil defense, an expansion of public health facilities on the local level is imperative and is recommended, therefore be it

RESOLVED, that the Eastern States Conference on Local Health Services and Civil Defense, meeting at Princeton, New Jersey on January 21–23, 1951, finds that the civil defense program can best be achieved through full-time local health service under the direction of a qualified health officer.

TRAINING OF PERSONNEL

THE Eastern States Conference on Local Health Services and Civil Defense recognizes the shortage of trained personnel,

WE endorse the present field training and recruitment program as currently operated in several of the separate states such as Delaware, Massachusetts, and New York, and

WE recommend to the states that do not have them, the development of similar programs.

Harry S. Mustard, M.D., executive director of the New York State Charities Aid Association, summarized the conference. S. S. Lifson, director of field program, American Heart Association, acted as moderator for several general sessions. Proceedings of the conference will be available from the National Health Council.

BIOLOGICAL ASPECTS OF AIR POLLUTION

The U. S. Public Health Service has compiled this annotated bibliography of articles dealing with various aspects of air pollution published in the last 50 years. Pathological effects, discussion of individual substances, geographical localities involved, and sources of pollution are among the several major topics discussed. *Biological Aspects of Air Pollution: an Annotated Bibliography* was printed by the United Steel Workers of America, C.I.O., as a public service. It is available from their Publicity Department, Room 1500, Commonwealth Bldg., Pittsburgh 22. 50¢.

CORTISONE, ACTH, AND HEART DISEASE

Dr. T. Duckett Jones, chairman of the American Council on Rheumatic Fever of the American Heart Association, New York, announced plans recently for a coöperative study of the effectiveness of ACTH and cortisone in the treatment and prevention of rheumatic fever and rheumatic heart disease. The long-term study will be conducted through a central coördinating center in New York City and at 12 coöperating research centers in the United States, Canada, and Great Britain. The Council's Committee on Criteria and Standards under the chairmanship of David D. Rutstein, M.D., professor of preventive medicine, Harvard Medical School, Boston, and A.P.H.A. representative on the American Council on Rheumatic Fever, will coördinate the investigation.

MAP OF A HALF CENTURY OF POLIO

The American Public Health Association has available for free distribution a limited number of copies of "A Map of the World Distribution of Poliomyelitis, 1900–1950." This map by Jacques D. May, M.D., of the American Geographical Society's Department of Medical Studies was prepared as a part of an Atlas of the Distribution of Diseases to be published by the society. The map attempts to give, in a compact, self-contained unit the epidemiological information contained in 1,000 odd sources of varying degrees of reliability and precision. 1790 Broadway, New York 19. Copies may also be purchased from the American Geographical Society, Broadway at 156th St., New York 32.

A.M.A. TAKES NOTE OF ALCOHOLISM

On the urging of the National Committee on Alcoholism and the New York State Medical Society, the House of Delegates of the American Medical Association, at its December clinical ses-

sion in Cleveland, accepted the problems of alcoholism as a responsibility of the medical profession. It passed a resolution referring the subject to the Committee on Chronic Diseases. The chairman of this committee is Robertson Ward, M.D., of San Francisco.

The resolution was introduced by Herbert H. Bauckus, M.D., a past president of the New York State Medical Society, which has for two years had a Special Committee on Alcoholism. It has been the only state or county to take cognizance of alcoholism as a medical problem. The chairman of the New York Society's Special Committee on this subject, Milton G. Potter, M.D., of Buffalo, expressed the hope that the Committee on Chronic Diseases would formulate and put into effect on a nation-wide basis a comprehensive program for medicine's participation in solving the problems of alcoholism.

MEDICAL SOCIAL WORK SCHOLARSHIPS

The Wheat Ridge Foundation offers 4 medical social work scholarships of $1,000 plus tuition to members of the Lutheran Church for the academic year, 1951–1952. The applicant must be a college graduate who has also completed the courses required by the social work school he has chosen. The school's social work program must be approved by the American Association of Medical Social Workers. Selection of the school is subject to the Foundation's approval. Scholarships may be renewable for a second year.

The Wheat Ridge Foundation was established by the Lutheran Sanatorium Association, Wheat Ridge, Colo., for the purpose of extending the services of the sanatorium by promoting a nation-wide system of medical social service. The scholarships were established because of the great shortage of medical social workers.

Applications must be completed by April 1, 1951. Further information from Wheat Ridge Committee on Scholarships, Valparaiso University, Valparaiso, Ind.

INDUSTRIAL HYGIENE PROCEDURES

The Georgia Department of Public Health has made available in mimeograph form, to industrial hygienists who need it, a manual entitled *Laboratory Procedures in Industrial Hygiene*. The manual was prepared by F. H. Goldman, Ph.D., currently with the District of Columbia Health Department, and formerly in the Division of Industrial Hygiene of the U. S. Public Health Service. The material was used by Dr. Goldman at the Georgia School of Technology in graduate courses given to engineers and chemists, through the cooperation of the Service and the State Health Department. Single copies are available without charge from Dr. Goldman, Bureau of Public Health Engineering, District of Columbia Health Department, 300 Indiana Ave., N.W., Washington 1, D. C.

MILITARY MEDICAL POLICY COUNCIL

The Secretary of Defense, Gen. George C. Marshall, has announced the appointment of the newly created Armed Forces Medical Policy Council. This will consist of the 3 military Surgeons General of the Army, the Navy, and the Air Force; 2 physicians, Drs. I. S. Ravdin of Philadelphia, and W. Randolph Lovelace, 2nd, Albuquerque, N. M.; and 1 dentist, Dr. James Hollers, San Antonio, Tex. The committee is under the chairmanship of Dr. Richard Meiling of Washington, who was formerly chairman of the Office of Medical Services of the Department of Defense, which office has been abolished.

INDIVIDUAL WATER SUPPLY SYSTEMS

The recommendations of the Joint Committee on Rural Sanitation with regard to individual water supply systems have been revised and published

under the title *Individual Water Supply System* with only minor modifications over that of the 1945 edition. The format of the report has been improved, with better type and larger and better illustrations. C. H. Atkins, chief, Division of Sanitation, U. S. Public Health Service, is chairman of the Joint Committee, which consists of representatives of the U. S. Department of Agriculture, the Conferences of the Municipal Public Health Engineers and of State Sanitary Engineers, and of other governmental agencies in addition to the Public Health Service. Supt. of Documents, Washington, D. C. 20 cents.

MENTAL HEALTH WEEK, MAY 2–8

The National Association for Mental Health has designated May 2–8 as National Mental Health Week. The first part of the week coincides with National Baby Week, the latter portion with National Family Week. Mental health as the birthright of childhood has been translated into "Build mental health—our children's birthright, the nation's strength" as the 1951 theme. Alex Sareyan is the executive secretary of the National Mental Health Week Planning Committee. Contributions of ideas should be sent to him as well as requests for further information. 1790 Broadway, New York 19.

STATE WATER POLLUTION CONTROL ACT

The importance of clean waters to the health—both physical and economic—of the nation has led more than half of the states to enact some form of legislation on the subject during the past ten years. The U. S. Public Health Service has prepared the *Suggested State Water Pollution Control Act* to aid legislative bodies in enacting stream pollution control laws and to produce some uniformity in the content of such laws. The proposed "Act" has been endorsed by the Council of State Governments. Water Pollution Control Division, U. S. Public Health Service, Washington, D. C. Free.

THE DOCTOR AND SOCIAL CASE WORK

The modern concept that health is not a physical matter alone leads directly into the consideration of the patient as a whole—physical, emotional, and social—in medical treatment. Hence the Veterans Administration, in its *Technical Bulletin TB 10–505, November 2, 1950,* considers "The Social Caseworker's Responsibilities in a Medical Residency Training Program." It shows the principles and methods by which the relation of social factors to illness may be taught to medical residents, the responsibilities and the needed facilities of the social service department in such training. The author is Ethel Cohen, special consultant in the research and education service of the Veterans Administration's Department of Medicine and Surgery. It is being distributed to the entire VA medical staff and may be available to others. The VA address is Washington 25, D. C.

A MARYLAND FIRST

The Maryland State Health Department recently organized a new service for detection and diagnosis of epilepsy. It is available to all the citizens of the state which is said to be the first in the country to provide such a state-wide service. Special bimonthly consultation diagnostic clinics are being held by Samuel Livingston, M.D., of Johns Hopkins Hospital, after which diagnoses and recommendations are sent to the family physician, at whose request periodic check-ups are made at the clinic.

ONE-MILLIONTH-X-RAY IN ILLINOIS

Late in 1950 the Illinois Department of Public Health took its one-millionth chest x-ray in its 5 year tuberculosis case finding program. It started operation in January, 1946, with 1 mobile unit. By the end of 1950, 5 mobile bus

units and 1 transportable unit were in operation. In planning the community x-ray programs, the department works with local groups which sponsor the survey—local health departments, tuberculosis associations, and sanitarium boards.

NEW DANGERS TO BABIES REPORTED

Two widely separated reports of infant deaths have appeared recently. Two babies died recently in Minnesota from poisoning due to nitrates in well water. This apparently represents a new outbreak, there having previously been none for 10 months following 146 such deaths in 1946, 1947, and 1948.

In Chicago, a coroner's jury has found that a chemical cleansing agent used to wash nursery bottles caused the death of several babies in one of the hospitals, when the chemical was accidentally introduced into the milk formula. The toxic chemical in the detergent was boron. The jury sent recommendations to the city health officer, Herman M. Bundesen, M.D., to prevent similar accidents by adequate supervision and precautions.

NURSING INTEGRATION INSTITUTE

The Boston University School of Nursing has planned a 3 day Institute on Integration of the Social and Health Concepts in Nursing, April 16–18, 1951. Preference will be given to those who are presently employed or preparing for a position as basic coördinators in schools of nursing. Otherwise the 30 places will be filled in order of applications received. Applicants should be eligible for matriculation although no university credit is given for the Institute. The leader of the institute is Grace A. Day, administrative assistant in education for schools of nursing, Visiting Nurse Association of Brooklyn, N. Y. Applications, accompanied by a $5 registration fee, should be made before the closing date, March 23. Registrar, Boston University School of Nursing, 264 Bay State Road, Boston 15.

CONNECTICUT ADDS ABOUT 75,000

The cities of East Hartford and Meriden in Connecticut, with populations of about 30,000 and 45,000 respectively, during 1950 established municipal health departments with full-time health officers, thus bringing coverage in the state to about 52 per cent of the total population.

RADCLIFFE OFFERS PUTNAM FELLOWSHIP

The Helen Putnam Fellowship for advanced research in genetics or mental health, open to women scholars who have a doctorate, is being offered by Radcliffe College for the academic year 1951–1952. The award carries a stipend of $2,800 a year with the possibility of renewal. Applicants are asked to submit a plan of research. Preference is given those whose research is already in progress. Applications must reach the Secretary of the Graduate School, Radcliffe College, Cambridge, not later than April 1, 1951.

MORE UNWANTED ANIMALS FOR RESEARCH

The voters of Los Angeles, on November 7, approved a proposition releasing an estimated 50,000 unclaimed dogs and cats from city pounds to qualified research institutions certified by the city health officer and inspected by the Department of Animal Regulation. A citizens' committee conducted a campaign jointly with the Medical Research Society of Southern California and the San Francisco County Medical Society. Individual physicians also contributed to the successful campaign by urging their patients to vote for "Proposition C." Posters were placed in waiting rooms and drug stores. A tabloid newspaper captioned *Citizens' Committee News for Yes on Proposition C* was widely distributed.

Among the defense projects which have been hampered by a lack of animals for research is an Atomic Energy Commission program at the University of California School of Medicine to develop protective treatment against radiation effects of atomic bombs. A vital Navy aviation program to improve safety of high altitude jet flight was slowed down.

STANDARD MILK ORDINANCE ACCEPTANCE

The U. S. Public Health Service has published for the first time since 1944 a list of American communities using the milk ordinance recommended by the U. S. Public Health Service. The ordinance is now in effect in 1,468 municipalities and 367 counties and sanitary districts including a population of 58,878,000. Of the areas listed, 4 states, 10 counties, and 392 municipalities require pasteurization of all market milk, except certified; in 36 counties and 269 municipalities all milk is pasteurized on a voluntary basis. The report is available from Division of Sanitation, U. S. Public Health Service, Washington 25, D. C. Free.

EXTENT OF ACCEPTANCE OF RECOMMENDATIONS OF THE HOOVER REPORT

A recent issue of *Reorganization News*, published by the Citizens Committee for Reorganization of the Executive Branch of the Government (*Hoover Commission Report*), tabulates the estimated percentage of recommendations in the various sections of the *Report* accomplished in 1949–1950.

According to this tabulation, a large majority of the recommendations have been accepted in such features as general management of the Executive Branch, the Office of General Services, in foreign affairs, in budgeting and accounting, and in the National Security Organization. On the other hand, the estimate indicates that in the area of Social Security, Education and Indian Affairs, only 5 per cent have been accepted, and in the area covered by Volume 16 on Medical Activities, only 10 per cent.

According to *Reorganization News*, there is a need to implement the recommendation for a United Medical Administration which would prevent competition among five large and many smaller federal hospital systems for scarce physicians, nurses, and technicians. It is alleged that these hospital systems fail to make full use of medical man power when they get it, that hospitals are built in out-of-the-way places for political reasons, construction programs are completely uncoördinated and in some cases new hospitals have risen almost adjacent to half-empty, half-staffed hospitals.

FINLAY STATUE TO TAMPA UNIVERSITY

Early in December the Cuban Government, represented by Dr. Carlos Ramirez Corria of Havana, formerly secretary of the Cuban Public Health Service, presented a bronze statue of Dr. Carlos Finlay, who originally proposed the mosquito as the means of transmission for yellow fever, to the University of Tampa, Florida. The bust was sent to the university "to commemorate past alliances in progress between Cuba and the United States and to symbolize future mutual advancement of cultural and trade relations between the countries."

BIBLIOGRAPHIES ON REFUSE DISPOSAL

The Sanitary Engineering Research Project, University of California, Berkeley, has extended its publication of bibliographies on the disposal of refuse with the publication of Technical Bulletin No. 2, *Bibliography on Disposal of Organic Refuse by Composting*, and Technical Bulletin No. 3, *Bibliography on Incineration of Refuse*. Technical Bulletin No. 1, published earlier, is entitled *Composting for Disposal of Organic Refuse*. Harold B. Gotaas is

director of the Research Project. Copies of the report may be obtained free of charge from him.

HILL-BURTON CUTS PARTLY RESTORED

The 81st Congress, shortly before it adjourned in January, restored $10,000,000 of the $75,000,000 which had been cut from the original $150,000,000 item for the current fiscal year for Hill-Burton Hospital Construction assistance.

WHO NEWS

Malaria Control Pays Big Dividends

A reduction in malaria infection from 50 in 1949 to 7 in 1950 out of every 1,000 persons, followed malaria control operations in a section of Northern Thailand. Five months after DDT spraying not a single specimen of the Anopheles mosquito could be found in man-hours of search equaling 90 working days. A significant fall was reported also in the infant parasite rate.

An international team aided by WHO and UNICEF was headed by Dr. G. Sambasivan, an Indian malariologist. A Thai team operated in a neighboring area. Together they protected about 66,000 persons by indoor spraying. This success has led the Thai government to plan an expanded program for 1951 to cover a population of 300,000. Aid from WHO and UNICEF will be continued.

Recommendations on Animal Diseases

In mid-December a group of experts on veterinary and public health met to prepare recommendations for a worldwide campaign to combat animal diseases transmissible to man (Zoonoses). Meeting under the joint auspices of WHO and the Food and Agricultural Organization were experts from 10 countries. The president of the International Office of Epizootics, Sir Daniel Cabot, served as chairman.

The foremost disease in the agenda was bovine tuberculosis, the infection level of which in cattle may reach 60 per cent in central and southern Europe. On the other hand it has been practically eradicated in Scandanavia and the United States by a policy, which was recommended, of tuberculin testing and the removal of infected animals from the herds. Large-scale surveys of Q fever prevalence as well as laboratory research were recommended. Elimination of stray dogs and use of effective measures against infection in dogs were recommended for control of hydatidosis.

Alcoholism a Public Health Problem

WHO's Committee of Experts on Alcoholism, which is part of its Panel of Experts on Mental Health, met in Geneva in December. It outlined a program that would deal scientifically with alcoholism as a public health problem wholly devoid of any moral implications. The lack of commonly accepted terminology was called a serious obstacle to international action. Alcoholism was defined as "any form of drinking which in extent goes beyond traditional customary dietary use or ordinary compliance with social drinking customs of the community concerned."

Antibiotics for Trachoma

A large-scale scientifically controlled campaign, said to be the first of its kind, for the control of trachoma with the new antibiotics was started early in December among Arab refugees in some of the Eastern Mediterranean countries. Supplies of the drugs, chloromycetin, terramycin, and aureomycin, are being supplied to WHO by the United Nations Children's Emergency Fund and the drug manufacturers of Italy and the United States. The WHO program, directed by Professor Giambattista Bietti of Parma University, will yield results for the entire world in setting up comparisons of the effectiveness of the new drugs in the control of the disease.

Trachoma is present in almost every country in the world and particularly widespread in Asia and the Mediterranean area.

Activity in Southeast Asia

In October, 1950, WHO sponsored a 3 day conference in Kandy, Ceylon, which was attended by more than 30 directors of health services from 24 Southeast Asia countries. In drawing up a blue print for development of the region's health services, the conference agreed that the greatest obstacles to improvement of health in this area were the shortage of trained personnel and the shortage of supplies and equipment. "Mere pittances" for health protection and promotion by various governments were reported in contrast to the per capita expenditure of $2 in Ceylon. As a result plague, cholera, and smallpox have been banished and striking progress made in malaria control.

Just previous to this meeting, WHO's Regional Committee for Southeast Asia met in Kandy, and adopted programs for the future. Estimated to cost $4,600,000 in 1951 and $3,300,000 in 1952, these programs include an international nutrition training institute in Calcutta, one in health statistics in Ceylon, as well as a venereal disease control project and a broad health demonstration area, tuberculosis training centers in several countries, and extensive international teaching staff for strengthening the training of nursing, medical, and other health personnel.

Mrs. Aung San, director of Women's and Children's Welfare in Burma, was unanimously elected chairman of the Southeast Asia Regional Committee, succeeding S.W.R.D. Bandaranaike, Ceylon's Minister of Health. The committee accepted Mrs. San's invitation to hold its 1952 meeting in Rangoon.

INTER-AMERICAN STATISTICS SEMINAR

The January issue of the *American Journal of Public Health*, page 26, carried an item descriptive of the Inter-American Seminar for Biostatisticians held in Santiago, Chile, September 25–December 15, 1950.

Forrest E. Linder, Ph.D., the chief of the Demographic and Social Statistics Branch of the Statistical Office, United Nations, points out that the listing of staff members omitted some of the major participants. In addition to a large number of incidental lecturers, representing four nationalities, the major staff members included Dr. Dario Curiel of Venezuela, Mr. Carlos E. Dieulefait of Argentina, Dr. Ruth Puffer, Mr. Charles Bennett, and Miss Nora Powell of the United States, and Mr. Domingo Almendras, Mr. Octavio Cabello, Mr. Alfonso Herrera, Dr. Hernan Romero, and Dr. Teodoro Zenteno of Chilean nationality. Dr. Linder also participated in the conference.

The United Nations emphasizes that this type of seminar or training activity is truly international in the sense that the staff as well as the participants are drawn from a number of different nationalities.

KANAWHA VALLEY AIR POLLUTION STUDY

The West Virginia State Health Department through its Bureau of Industrial Hygiene and with the aid of the Kettering Laboratories of Applied Physiology in Cincinnati is making a technical survey of the air pollution problem in the state's Kanawha Valley. The survey will include analyses of plant emissions to the air as well as a study of contaminants in the atmosphere. The industries of the valley have contributed $27,000 for the study which is to be completed by July, 1951.

HERMANN M. BIGGS MEMORIAL LECTURE

The annual Hermann M. Biggs Memorial Lecture of The New York Academy of Medicine under the auspices of the

Committee on Public Health Relations will be delivered on April 5 at 8:30 P.M. by Rene J. Dubos, Ph.D., Member, Rockefeller Institute for Medical Research. His subject will be "Biological and Social Aspects of Tuberculosis." This lecture, held in Hosack Hall, 2 E. 103rd St., New York City, is open to the general public.

PERSONALS

ROBERT M. ALBRECHT, M.D.,† has been promoted from senior public health physician to associate public health physician in the Bureau of Epidemiology and Communicable Disease Control, Division of Medical Services, New York State Health Department.

ROBERT ALDEN has been appointed hotel and resort inspector for District V, Minnesota State Health Department, with headquarters in Worthington.

DR. JULIAN W. AMSIEJUS, veterinarian, has been assigned by the Public Health Service to the Arizona State Department of Health to work with the Bureau of Preventive Medical Services.

DWIGHT ANDERSON, director of public relations for the Medical Society of the State of New York for the past 16 years and the society's executive secretary since 1945, has retired from his duties with the society.

LINNEA ANDERSON † and JANET WARDLAW have joined the staff of the Nutrition Section of the Michigan Department of Health.

S. J. AXELROD, M.D., M.P.H.,* has been appointed resident lecturer in public health economics, University of Michigan School of Public Health.

ANNE M. BAHLKE, M.D.,* assistant director, Bureau of Medical Rehabilitation, Division of Medical Services, New York State Department of Health, has been appointed acting director of the bureau, succeeding LEON STERNFELD, M.D., resigned.

ROBERT BARRIE,† assistant executive secretary of the New York State Committee on Tuberculosis and Public Health, has resigned to become executive secretary of the Virginia Tuberculosis Association with headquarters in Richmond.

CATHARINE BAUER, formerly with the Julian J. Jackson public relations agency, has been made assistant director of public relations, National Society for Crippled Children and Adults, Chicago.

FREDERICA BEINERT,† formerly director of nutrition service, Chicago Chapter, American Red Cross, has been appointed nutrition director of the Cereal Institute in Chicago succeeding KATHARINE BROWN,† who has reported to the United States Navy Department, Bureau of Supplies and Accounts, Washington, D. C., as Lieutenant, Senior Grade.

JOHN J. BLOOMFIELD,* assistant chief of the Division of Industrial Hygiene of the Public Health Service, has been appointed to the Institute of Inter-American Affairs as consultant on industrial hygiene for Latin America.

VICE ADMIRAL JOEL THOMPSON BOONE, Medical Corps, USN (ret.) is the new chief medical director of the Veterans Administration, succeeding PAUL B. MAGNUSON, M.D., resigned.

ROBERT S. BOWMAN, formerly with the Defiance-Fulton Counties Health Department, has joined the Ashland County-City (Ohio) Health Department as sanitarian.

LENA BURRIER, R.N., is health nurse with the Guernsey County-Cambridge (Ohio) Health Department.

FRANK A. CALDERONE, M.D.,* executive director of the New York City Cancer Committee for the last year, has been appointed director of the United Nations Health Service. Dr. Calderone formerly was director of the New York liaison office of the World Health Organization and acted as consultant for the United Nations Health Service.

EVELYN CLARKE, for the past year and half, field representative with the American Social Hygiene Association, is now public relations consultant, Association of Junior Leagues of America, with headquarters in the Waldorf Astoria Hotel, New York City.

COL. PAUL M. CRAWFORD, MC AUS (Ret), was erroneously listed in our January, 1951, JOURNAL as director of Tuberculosis Control, Florida State Department of Health instead of Kentucky.

BARBARA CROWTHER,† is the newly appointed nutritionist in the Cleveland (Ohio) Division of Public Health.

ALLAN R. CUNNINGHAM, M.D.,† JEAN LATIMER,* and ELLA MASON, formerly of the Section of Health Information of the Massachusetts Department of Public Health, have been transferred to a new Section on School Health in the Division of Maternal and Child Health, the first named as head of the Section.

WINFIELD G. DOYLE, Ed.D., who has been since 1946 Associate Curator, Department of Education, American Museum of Natural History, New York, has been appointed Curator of Education in the Cleveland Health Museum, Cleveland, Ohio.

DAVID R. L. DUNCAN, M.D.,† director of the Las-Animas-Huerfano Counties Health Department (Colo.) for the past 2 years, has become medical director of the Tri-County District Health Department including Adams, Arapahoe, and Jefferson Counties with headquarters in Denver.

PAUL F. DUNN, M.D., has been named director of the Child Guidance Center of Harrisburg, which provides services to parents and children from the Harrisburg Community Chest area, and from any part of Pennsylvania having no other child guidance service.

W. G. A. EDELMAN, M.D.,† formerly assistant chief, Public Health Section, KCAR, GHQ, SCAP, Tokyo, Japan, has been promoted to chief, Public Health Section, SCAR, GHQ, SCAP, Shikoku, Japan.

S. F. FARNSWORTH, M.D.,* Oakland Health Officer, recently joined the staff of the World Health Organization on temporary assignment as public health consultant to direct research and the formulation of plans for the establishment of local health services in Egypt. MARGUERITE GREAVES, M.D., will serve as acting health officer during his absence.

MOREY R. FIELDS, Ed.D.,† associate professor of education and director of health education curriculums in the School of Education of New York University since 1946, has been named director of the Bureau of Public Health Education of the New York City Department of Health.

HARRY J. FOWLER, has been appointed visual aids director of The Cereal Institute, Chicago.

WILLIAM C. GIBSON,* educational director, sanitation field training, School of Public Health, University of North Carolina, has joined the faculty of the School of Public Health, University of Michigan, as associate professor of public health engineering.

LLOYD GILMORE is director of public relations for the Idaho Tuberculosis Association, succeeding ABE STEIN,† resigned.

RUTH GRAHAM, formerly director of county organization for the Maryland Tuberculosis Association, is now in the Personnel and Training Service of the National Tuberculosis Association, as consultant in personnel recruitment and placement for the field, succeeding SELMA GERMOND POLLOCK, resigned.

PARIS LEE GUY, who has been superintendent of Water and Sewage Treatment Plants for the Jamestown, N. D., State Hospital, has been appointed public health engineer, Sanitation Division, Colorado State Health Department.

ALICE VIRGINIA HAGELSHAW, B.S., M.P.H., formerly public health nursing consultant, California State Department of Health, has been appointed assistant professor of public health nursing, University of Michigan School of Public Health.

J. N. HEBBLE, M.D., previously serving part time as acting health commissioner, has been named full-time health commissioner of the Springfield (Ohio) Health Department.

HARRY H. HENDERSON, M.D., most recently working toward a graduate degree in Public Health at the University of North Carolina, has been named as director of the Division of School Health, Kentucky State Health Department.

ROBERT E. S. KELLEY, M.D.,† former district health officer of the North Metropolitan District, Massachusetts State Department of Public Health, has been appointed Executive Medical Officer, Medical and Health Division of the Massachusetts Civil Defense Agency. He has been succeeded by LEON STERNFELD, M.D.,† on the staff of the New York State Department of Health since 1943.

LITA L. KORBE, director of public health nursing for the Montana State Department of Public Health, is now educational director, Public Health Nursing Section, of the Colorado State Health Department.

RUTH KRAMAROW,† formerly with the San Diego (Calif.) Tuberculosis and Health Association as health educator, is the new director of health education for the Massachusetts Tuberculosis and Health League, Boston.

BERNARD M. KRUG, M.D.,† former Health Officer of Beaufort-Hyde Counties Health Department in North Carolina, has been appointed Health Officer of Milford, Conn., succeeding SHIRLEY KUSSNER, M.D., who has been Acting Health Officer since April, 1950.

BESSIE LITTMAN,* formerly public health nursing consultant in mental health, California State Department of Health, is now mental health consultant, National Organization for Public Health Nursing, with headquarters in New York.

KENNETH I. E. MACLEOD, M.D., with public health experience in Scotland and India, and the Tuberculosis Division, Department of Public Health, Prince Edward Island, Canada, and who in 1950 took his Master's degree in public health at the University of Michigan, is now district health officer of the South Central District, Massachusetts State Department of Public Health, with headquarters in Worcester.

NORA A. MAGNER, R.N., who has served as a staff nurse in the Pittsfield (Mass.) Health

* Fellow.
† Member.

Department for 29 years, retired December 31.

HERBERT L. MANTZ, M.D.,* director of tuberculosis control, Kansas City (Mo.) Health Department, has succeeded ESMOND R. LONG, M.D.,* as chief consultant in tuberculosis, the Veterans Administration and a member of the VA's Board of Chief Consultants.

JACK MASUR, M.D.,* has been named head of the Public Health Service's Bureau of Medical Services, succeeding R. C. WILLIAMS, M.D.,* who retired after 33 years to become Director of Medical Services for the Georgia Department of Health. Dr. Masur, who joined the Public Health Service in 1943, has recently been a medical director in the National Institutes of Health, Bethesda, Md.

JOHN MCCARTHY, former director of health education for the Los Angeles County (Calif.) Tuberculosis and Health Association, has been named executive secretary of the San Diego County Association, succeeding PAUL C. WILLIAMSON.

DANIEL P. MCMAHON, M.D.,* most recently in private practice in Leakville, N. C., but formerly with the department is now District Health Officer of the Binghamton District, New York State Department of Health.

MARJORIE MURPHY, is now nutrition consultant, Division of Nutrition, Kentucky State Health Department with headquarters at Murray. She will work with nurses in local health departments in the western part of the state to help in all phases of nutrition programs.

LORENA JANE MURRAY,† nursing consultant in the U. S. Public Health Service, is making a 3 month survey of nursing facilities and needs in South East Asia under the auspices of the Economic Coöperation Administration. She is consulting with government authorities and medical and nursing groups of Formosa, Indo-China, Burma, Thailand, the Philippines, and Indonesia to determine the kind of nurse training programs to be set up in those countries.

A. JOHN NELSON, M.D., formerly of the venereal disease program in British Columbia, has been appointed associate health physician in the Bureau of Venereal Disease Control, Division of Medical Service, New York State Department of Health.

EDITH OAKES, R.N., assistant director of public health nursing in the Erie County (N.Y.) Health Department, has resigned to become assistant professor of public health nursing at the Frances Payne Bolton School of Nursing of Western Reserve University.

ROBERT HUGHES PARRY, M.D.,* Medical Officer of Health of Bristol, and ARTHUR W. MASSEY, M.D.,* formerly Medical Officer of Health of Coventry and now Chief Medical Officer, Ministry of National Insurance, London, were made Honorary Physicians to the King (K.H.P.), in a recent list released by King George of Great Britain.

WILLIAM BARCLAY PARSON, M.D., Professor of Clinical Surgery, Columbia University College of Physicians and Surgeons, was recently elected President of The New York Academy of Medicine for a term of two years.

JEROME S. PETERSON, M.D.,* who has been stationed in Beirut, Lebanon, for 2 years serving with the American Friends Service Committee—United Nations Project for Palestine Refugee Relief, writes that he is now in charge administratively of the education and welfare program as well as the health activities of the United Nations Relief for Palestine Refugees.

W. S. PETTY, M.D.,* has resigned as Director of Local Health in the Nebraska State Health Department to become a Missouri State District Health Officer for 15 counties with headquarters in Macon.

DANIEL POWERS,† formerly personnel manager at the Hospital for Joint Diseases has been appointed administrative assistant at the Beth Israel Hospital, New York City.

EDWARD PRESS, M.D.,* who is associate director of the University of Illinois Division of Services for Crippled Children, Chicago, has been named assistant professor of preventive medicine at the University of Illinois College of Medicine, Chicago.

ARTHUR B. PRICE, M.D.,† former regional medical director of FSA Region IV with headquarters in Cleveland, has been made Regional Director of the Agency's Region V, with headquarters in Chicago, and including Illinois, Indiana, Wisconsin, and Minnesota. He succeeds SEWARD E. MILLER, M.D.,* who has been made chief of the division of Industrial Hygiene, Public Health Service.

DAVID C. PRICKETT, M.D.,† formerly a practising physician in Shinnston, has succeeded R. MOORE DODRILL, M.D.,† as director of Health District 4 (Lewis, Upshur, Calhoun, and Gilmer Counties) with headquarters in Weston, W. Va.

MILDRED PUGLASI, public health nurse with the Erie County-Sandusky Health District (Ohio), for the past 3 years, has become head nurse and clinical instructor, St. Vincent's Hospital, Toledo.

WILFRED S. REYNOLDS retired on December 31, 1950, as executive director of the Welfare Council of Metropolitan Chicago, after 33 years of service.

LYLE J. RORERTS, MC, U.S.N. (Rtd.) has succeeded HUBERT T. MARSHALL, M.D., as director of Health District 6 (Berkeley, Morgan, and Jefferson Counties) with headquarters in Martinsburg, W. Va.

MARTHA RONAYNE, formerly educational director, Visiting Nurse Association of Des Moines, Iowa, is the new director of nursing service at the Lincoln City-Lancaster County Health Department in Nebraska.

GUILLERMO E. SAMAMÉ, M.D.,† a Peruvian physician, formerly a consultant on venereal diseases with WHO, has recently been appointed regional adviser on venereal disease for the Region of the Americas, WHO, with headquarters in Washington, D. C.

RUSSELL ELLSWORTH TEAGUE, M.D., most recently loaned by the U. S. Public Health Institute to the Henry Phipps Institute of the University of Pennsylvania Medical School as its assistant director, has been appointed secretary of health of the Commonwealth of Pennsylvania. By appointment of the new Governor, John S. Fine, he succeeds NORRIS W. VAUX, M.D.,† retired.

BETTY TOBIAS is public health nurse in the Lake County Health Department, Ohio.

MARGARET H. VALLANDINGHAM, R.N., is in the Greenbrier County (W. Va.) Health Department, succeeding JOHNNIE ELLIS, resigned.

W. W. WENDT, for the past two years executive secretary of the Galveston County (Texas) Tuberculosis Association, has joined the Program Development Service of the National Tuberculosis Association as an associate.

RUSSELL WILDER, M.D.,* former senior medical consultant at the Mayo Clinic, has been appointed director in the National Institutes of Health of the New Institute of Arthritis and Metabolic Disease, which is absorbing the Institute of Experimental Biology and Medicine. Its acting director, FLOYD F. DRAFT, M.D., is associate director of the New Institute.

MRS. CORLISS WILLIAMS has resigned her position as supervisor and tuberculosis consultant in the Cincinnati Health Department for work with the American Red Cross in St. Louis.

DAVID WILSON, M.D., Medical Officer of the Public Health Service, recently assigned to the health resources office of the National Security Resources Board, is now on the staff of the W. S. Kellogg Foundation, making a study of diagnostic facilities in small hospitals in Mississippi.

WILLIAM P. YANT,* director of research and development for Mine Safety Appliances Company, Pittsburgh, has been elected president for 1950–1951 of the American Society of Safety Engineers.

DEATHS

JAMES EDWARD BAUMAN, for 57 years identified with the State Public Health Department in Ohio, and most recently as chief of the division of administration, died December 4 at the age of 80.

JOSEPH BLICKENSDERFER, M.D.,* Health Commissioner, New Philadelphia, Ohio (Health Officers Section).

WILLIAM R. P. CLARK, M.D.,† since 1911 a member of San Francisco Tuberculosis and Health Association's board of directors, died December 10, 1950, at the age of 83 (Epidemiology Section).

C. CHARLES BURLINGAME, M.D.,† President and Psychiatrist-in-Chief, The Institute of Living, Hartford, Conn., died July 22, 1950, following a heart attack when attending a medical meeting in England (Medical Care Section).

WILLIAM HENRY CONGER, M.D., Health Officer of the City of Poughkeepsie, N. Y., for more than 25 years, died on December 23, at the age of 65.

GEORGE L. DAVIS, B.C.S.,† Executive Director, Nassau Hospital, Mineola, N. Y., died January 6 (Public Health Education Section).

KARL C. EBERLY, M.D.,† City Health Commissioner, Fort Wayne, Ind., died January 8 (Health Officers Section).

J. L. HURST, M.D., former Ashtabula County (Ohio) Health Commissioner, died October 30, 1950.

C. L. HUTCHENS, Sanitary Inspector, Indiana State Board of Health from 1911 until his retirement in 1946, died recently in his 90th year.

GEORGE G. KLOSER, senior milk sanitarian for the Utica district, New York State Department of Health, died recently.

MAURICE KNOX, D.V.M., a meat inspector with the Cleveland Division of Public Health (Ohio) was recently killed instantly when his car was in a collision.

HUGO E. KUNHARDT,† Engineer, Sanitary Engineering Inter-American Coöperative Service of Public Health, Guatemala City, Guatemala, died June, 1949 (Engineering Section).

WALTER J. MADDOCK,† State Director, Farmers Home Administration, U. S. Department of Agriculture, Bismarck, N. D., died January 25 (Public Health Education Section).

ERNEST S. MARIETTE, M.D., former superin-

* Fellow.
† Member.

tendent of Glen Lake Sanatorium, Oak Terrace, Minn., died October 29, 1950, after a year's illness, at the age of 62.

M. T. MORRISON, Health Officer for Braxton County (W. Va.) died December 10.

HERMANN SOMMER, Ph.D.,† of the Hooper Foundation, University of California Medical Center, San Francisco, Calif., died July, 1950 (Laboratory Section).

GEORGE W. STOBER, M.D.,† for 30 years Commissioner of Health in East Cleveland, Ohio, died November 2, 1950 (Industrial Hygiene Section).

JOHN WILLIAM TRASK, M.D., Health Commissioner of Pittsfield, Mass., from 1942 until 1946, died January 6 at the age of 73.

CONFERENCES AND DATES

American Public Health Association. Headquarters, Civic Auditorium, San Francisco, Calif. Oct. 29–Nov. 2.

Coming in March, April, and May:

American Association of Medical Social Workers. Annual Meeting. Atlantic City, N. J. May 17.

American Association of Social Workers. Hotel Chelsea, Atlantic City, N. J. May 11–13.

American College of Physicians. St. Louis, Mo. Apr. 9–13.

American Society for Public Administration. Hotel Statler, Washington, D. C. Mar. 9–11.

American Water Works Association:

Annual Meeting. Miami, Fla. Apr. 29–May 4.

Canadian Section. Royal Alexandra Hotel, Winnipeg, Man. May 21–23.

Illinois Section. La Salle Hotel, Chicago. Mar. 28–30.

Kansas Section. Lamer Hotel, Hays. Apr. 11–13.

Montana Section. Placer Hotel, Helena. Apr. 20–21.

Nebraska Section. Cornhusker Hotel, Lincoln. Apr. 19–20.

New England Section. Hotel Statler, Boston. Mar. 15.

New York Section. Hotel Ten Eyck, Albany. Apr. 5–6.

Pacific Northwest Section. Vancouver, B. C. May 17–19.

Association of State Planning and Development Agencies. Sherry-Frontenac Hotel, Miami, Fla. Apr. 15–18.

Fifth Congress on Obstetrics and Gynecology. Cincinnati, Ohio. Mar. 31–Apr. 4.

Kansas Public Health Association. Wichita Hotel, Lassen. Apr. 23–25.

Minnesota State Medical Association. Rochester, Minn. Apr. 30–May 1.

Missouri Public Health Association. Governor Hotel, Jefferson City. May 7–9.

National Association for Nursery Education. Hotel Commodore, New York, N. Y. Mar. 7–10.

National Conference on Chronic Disease. Preventive Aspects. Commission on Chronic Illness. Edgewater Beach Hotel, Chicago. Mar. 12–14.

National Conference of Social Work. Atlantic City, N. J. May 13–18.

National Health Council. New York, N. Y. Apr. 6.

National Society for Prevention of Blindness. New York, N. Y. Mar. 28–30.

National Tuberculosis Association. Annual Meeting. Cincinnati, Ohio. May 14–18.

Public Health Conference on Records and Statistics. Washington, D. C. Apr. 23–26.

South Carolina Public Health Association. Ocean Forest Hotel, Myrtle Beach. May 21–23.

Southern Branch, A.P.H.A. Biloxi, Miss. Apr. 26–28.

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